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ABSTRACT

Five issues examine each year's trends and innovations in effective school architectural design in North America from 1995 through 1999, covering new school construction and renovations and additions for K-12 schools. Also included are photographs, award-winning designs selected as examples of the latest in educational design technology and functionality, and designs that allow schools as community centers. Other topics include creating healthy educational environments, making schools accessible, and planning for change in educational trends. (GR)

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A School Leader's Guide to Architectural Services, March 1995-March 1999.

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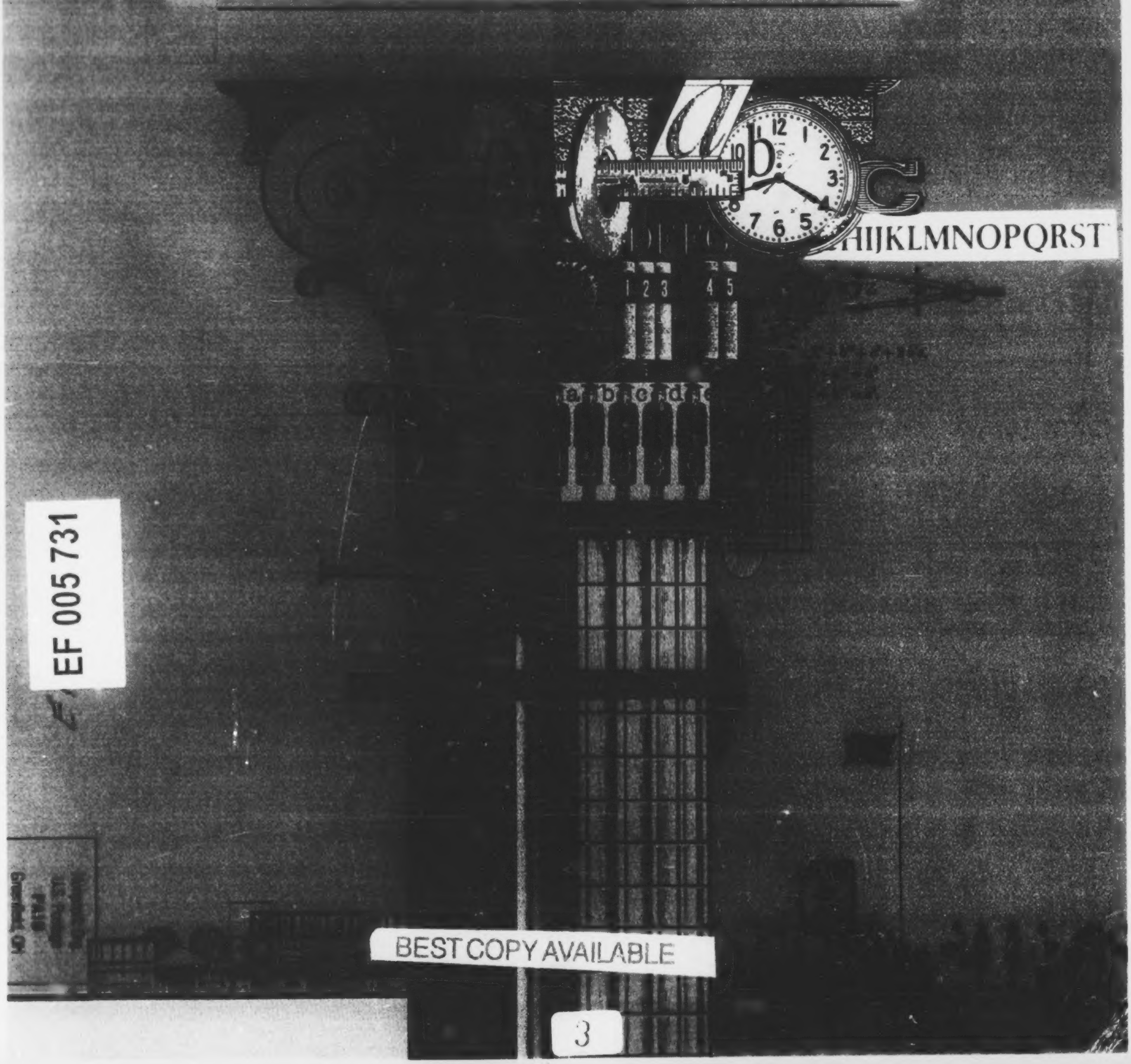
LEARNING BY DESIGN

A School Leader's Guide to Architectural Services ■ March 1995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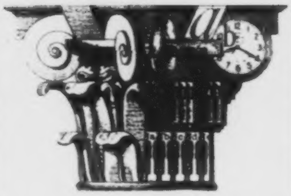

INTRODUCTION

In 1993, school districts did almost $10.8 billion of construction—its highest mark ever. Approximately 42 percent of the work was in construction of new schools; the balance was in additions, retrofits, or modernization of existing buildings, according to *American School & University*.

Part of a continuing trend, construction totals have been inching up over the last three years. Similarly, enrollments are creeping up as well, with growth expected to last well into the next century and projections estimating enrollment in 2004 to top 55 million students.

Because the schools being built to handle this growing population are markedly different from even their 10-year-old cousins, *Learning by Design* highlights a variety of trends sweeping through the nation's schools and transforming their form and function.

One of the most far reaching is technology. Schools are being built to handle a wider range of technology, and curricula are shifting to adjust to technological and social changes. These shifts—such as the adoption of the "school within a school" philosophy and structure—are altering school interiors.

Another emerging trend is the move toward schools serving as a comprehensive community resource. No longer just used by students, school facilities are used by the community as a whole—all day and all year.

School districts across the country are bringing these trends to life in their schools, working with architects and construction managers to build efficient, enduring structures.

To increase its usefulness, this year's edition of *Learning By Design* includes three "how to" articles to guide school leaders through the construction and equipment purchasing process and to further discuss specific trends in school design.

Most importantly, *Learning By Design* gives you an up-close glimpse into some of the most innovative and effective school designs in North America. The projects profiled in this publication have been reviewed for suitability by a panel of distinguished architects and facilities planners specializing in school design and construction.

Representatives of the firms featured in this issue are ready and eager to answer any questions you might have about their projects and services. They'll be happy to assist you in whatever way they can whenever your school district is ready to prepare for a major building program. ■

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From the Reviewers:

INCREASED TECHNOLOGY, EASY ACCESS DOMINATE SCHOOL DESIGN

Educational buildings of the future will be environments of access. Increasingly, these learning environments will be designed to provide students, teachers, administrators, and patrons with direct access to the resources and tools they'll need to succeed. And the key to that access is technology.

Some schools already offer television consoles that allow students to monitor courses from other schools or beam up taped lectures by any teacher. Built-in computer terminals enable students to tap into the resources of libraries around the country or scan any of a number of daily papers.

In addition to the emphasis on technology, the judges for this year's *Learning By Design* entries identified a number of recurring design innovations that will no doubt become staples in future school designs. These include:

- Classrooms that function like studios, research centers, conference rooms, or offices.
- Work stations for students who are part of small teams.
- Modular furnishings, technology tools, and materials that offer multiple ways to learn.
- "Invisible" technology, making information and communications accessible to all.
- Information that moves—not people, materials, or equipment.
- Alternative schools for students who are not succeeding in traditional settings.
- Facilities serving as lifetime learning centers.

Many of the projects featured in this publication provide good examples of what can be expected in the "schoolhouse of the future." Elements featured in their designs include work spaces for cooperative learning by groups of different sizes; nooks where students can think and work independently; quiet, private areas for one-to-one sessions with a coach, mentor, or fellow student; central gathering places, especially for students to work and socialize; and offices where teachers can work as professionals.

The following six projects incorporate some or all of these design innovations, and provide a glimpse into the future of school design.

Rawson Elementary School

In addition to being a prime example of the popular "school-within-a-school concept," Rawson Elementary School, Milwaukee, Wis., is a "fun learning place for kids," according to the judges.

Made up of three-room "houses" for each grade level, each unit house has a common space for instruction. The design's deviation from "just corridors" allows for the creation of niches and other "interesting places," say the judges. More importantly, it shows a "real concern for the quality of the environment for the children."

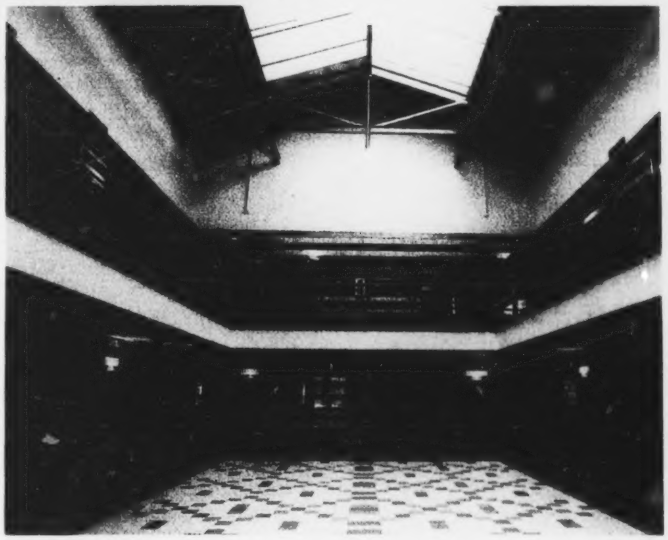
Rawson Elementary School

Prospects Continuation High School

Designed as an alternative means of education for students who have or are considering dropping out of high school, Prospects Continuation High School, Antioch, Calif., also provides continuing adult education classes. Given the school's dual function, the judges were impressed with its adaptability, especially the portable wall system.

The design makes it possible to alter the size and character of teaching spaces to meet ever-changing teaching and learning styles, said one of the judges. In addition, the school embodies the shift in educational philosophy to emphasize the individual.

"This is the kind of facility we're going to see more of—shaped specifically for intensive individual attention," according to one judge.



Prospects Continuation High School

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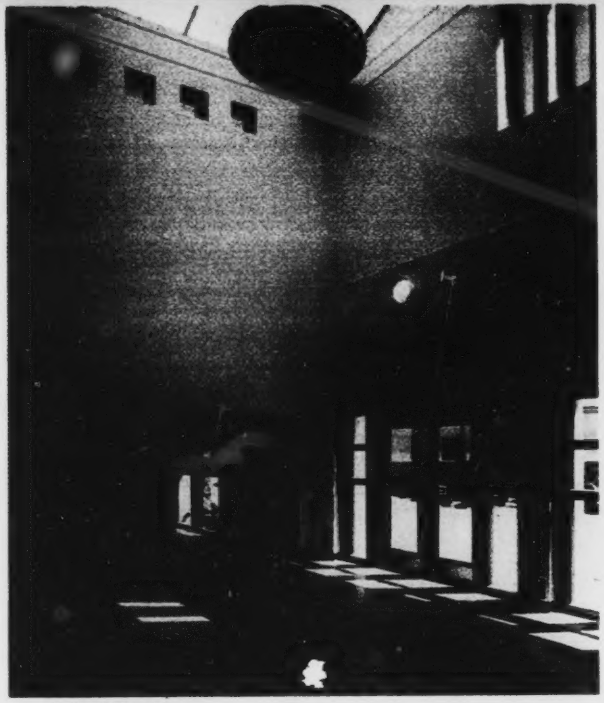
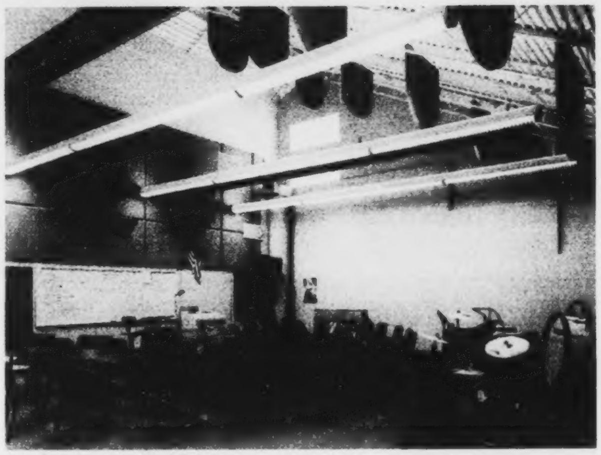
Franklin Elementary School

Burr Ridge Middle School



Mesa Verde Middle School



Cypress Lake Center for the Arts

Franklin Elementary School

Featuring spaces designed specifically for community use, Franklin Elementary School, Seattle, Wash., was intended to be an integral part of its surrounding environment. "An excellent design that incorporates year-round school opportunities, community access, and sensitivity to the environment," commented one judge.

The school's corridor, designed to be used as an informal gathering area, impressed one judge as a "great usage of typical non-usable space."

Burr Ridge Middle School

The shift to team-based learning is evident in the design of Burr Ridge Middle School, Burr Ridge, Ill. Offering a "significant advancement from the traditional double-loaded corridor, this educational edifice truly offers multiple opportunities for different teaching and learning styles," said the judges.

The school was designed with four grade clusters, each with four classrooms organized around central resource centers. Especially impressive is the access to technology. "Teachers have been provided with computers, printers, telephone and voice or electronic mail access to building, district and state-wide databases."

Mesa Verde Middle School

The school-within-a-school concept also was the inspiration for the design of Mesa Verde Middle School, Poway, Calif. Its village clusters, organized by grade level, contain full interdisciplinary programs and "are planned and designed to offer teachers and students various opportunities for multiple teaching and learning," said the judges.

The practical incorporation of technology into the design—including a campus-wide data and cable television network and the availability of television monitors, telephones and data jacks—also impressed the judges. "Faculty request the information and services and have total local control of media input and output," the judges added.

Cypress Lake Center for the Arts

The judges found Cypress Lake Center for the Arts, Fort Myers, Fla., to itself be a work of art. The school design has "simple elegance and does not rely on frills for excitement," commented one judge. The school offers "excellent spaces for a variety of learning styles that will appeal to all students," said another.

A perfect example of "futuristic design," the facility incorporates where students are and want to be in today's and tomorrow's world. "This educational community appeals to the world of communication in multiple ways," the judges concluded. ■

The review panel for this year's program included ***C. William Day****, senior analyst with the KBD Planning Group, Inc., Bloomington, Ind., and* ***Robert Moje****, AIA, VMDO Architects, Charlottesville, Va.*

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FIVE TRENDS SHAPING SCHOOL DESIGN

Here's an eye-opening thought: The Class of 2000 entered the 7th grade last fall. When those students first started school, they probably sat in identical box-like rooms protruding from a spine-like hallway. That era in school design is long over.

A school built for use from only 8 a.m. to 3 p.m., 10 months out of the year, was once the norm. It, too, has become obsolete. Even the age of a school "computer lab" is quickly coming to an end. As one architect notes, "By the end of the century, we won't even use the term 'computer lab.' It will sound as ridiculous as a teacher saying, 'Okay class, now we're going down the hall to use the pencil and paper lab.' "

When the 21st century arrives in the not-too-distant future, it will undoubtedly bring changes unimaginable right now. Already, schools have begun a transformation, with the push coming not from the design community but rather from forces within the schools themselves. Here's an overview of the top five trends influencing school design, along with a look at some of their implications:

1. Increased Use of Technology

The constant stream of new technology is profoundly changing the nature of schools and, in turn, altering their physical attributes. More than subtle developments in software and hardware, the sweeping technological changes will enable students to connect easily with others outside the boundaries of their schools, communities, and even countries.

Rural populations, for instance, can have access to databases that aren't available locally; urban and suburban districts can also enhance and enrich their resources by linking students with sources of information outside the walls of their schools.

"Computers and televisions are only the beginning. Soon there will be other modes of communication that can be linked to outside sources" such as wireless technologies, says Glenn Earthman, professor of education administration at Virginia Polytechnic Institute and State University, Blacksburg, Va. The challenge to architects and planners is to accommodate the unknown technologies in their designs.

What will all this technology do to the interiors of classrooms? Already, it's making them bigger. "Once you start putting computers in classrooms, it affects capacity. When you have 20 to 25 students, you need six to eight spaces to handle computers," says Earthman.

2. Shifts in Curriculum

Computers and communication devices aren't the only things altering space requirements. Changes in educational philosophy and curriculum also play a role. The trend away from a single teacher standing and lecturing to students seated in regimental rows of desks has given rise to a demand for different kinds of spaces. Cooperative learning methods, in which small groups work together at the same time, are catching on in schools at all levels.

"Nowadays there is no desire to park kids at desks all day. Teachers want space to do small group work," notes Ralph Rohwer, program director of educational facilities for Heery International in Bellevue, Wash.

Equal to the demand for small-group work space, adds Ray Bordwell, is the demand for larger spaces. "There is a need for places where 30 to 50 kids can review new software or listen to student presentations. In general, we're see-

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ing fewer of the 24-kids-per-classroom spaces being built," says Bordwell, vice president of Perkins & Will Architects, P.C., in New York.

Integrated teaching methods and the need to make facilities more efficient are leading to less-specialized classrooms. "Today, the need is to create different-sized spaces to accommodate different numbers of people doing a different number of things," says Bill Day, senior analyst of the KBD Planning Group Inc., Bloomington, Ind. The integration of academic programs means that all subjects can be taught in one area. "There are no more English or math classrooms. Now you have student project rooms, seminar rooms, a business center, and a [research and development] center."

That spells an end to classrooms "owned" by certain teachers. And such a fundamental change spurs yet another adjustment: in the absence of assigned classrooms, schools need to provide alternative work or office space where teachers can plan and discuss interdisciplinary approaches to subjects.

Interdisciplinary teaming and integrated curriculum go hand-in-hand with the design concept of "houses" or "a school-within-a-school." "The trend is to create individual identities for the students. There's an attempt to create some sort of smallness. Whether it's called a 'house,' 'family,' 'colony,' or 'school within a school,' designers are trying to individualize buildings," says James Rydeen, president of Armstrong, Torseth, Skold & Rydeen in Minneapolis, Minn.

In part, this trend balances a move to bigger schools that take advantage of economies of scale; operation and maintenance cost less if you have one big school rather than two smaller ones. In junior and senior high schools, the "house" concept may take the form of classrooms clustered around student work areas. In an elementary school setting, the classrooms may be grouped with teacher offices, work rooms, and conference rooms. Typically, each independent "house" has its own bathroom facilities for both students and faculty.

Block scheduling promises to revolutionize school interiors as well. More and more high schools have introduced the concept of having students spend a longer period of time in one place. When that happens, comfortable furniture, responsive climate controls, and the need for versatile space become even more important.

Other more subtle curriculum shifts are affecting the design of schools, including:

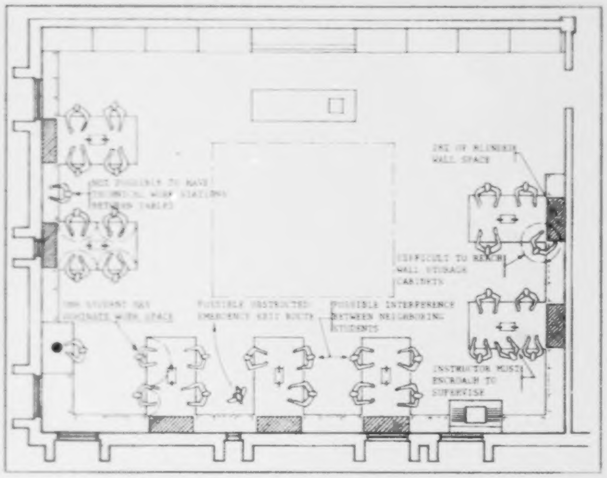
- **A new role for physical education (PE).** Increasingly, PE classes focus on life-long wellness, leading to the construction of aerobics rooms, weight rooms, and dance studios.
- **Increased involvement of women in sports.** "If you have two basketball courts for the boys, you need two basketball courts for the girls," says Bordwell, adding that schools now support many more sports than in the past. Both trends inflate the size of school sites.
- **A resurgence in the arts.** A traditional auditorium, featuring a big house and a small stage, typically had enough space to seat the entire student body. Except for school assemblies, however, the space went largely unused. Today's auditoriums, with their large stages and small houses, resemble theaters. They usually can accommodate one-third to one-half of the student body and fulfill the need for larger instructional space.
- **Larger science labs.** Bordwell describes a science-lab scenario of today: Eight students work in the front of the room with the teacher, eight work in the computer area on an experiment simulation, and another eight do hands-on

Access for All

Federal law prohibits discrimination in any activity or service operated or funded by a state or local government. Since the mid-1970s, schools have also been subject to the Rehabilitation Act of 1973, which requires schools to make their programs accessible. In 1990, Congress addressed the accessibility of facilities by passing the Americans with Disabilities Act (ADA). In its simplest form, ADA prohibits discrimination against people with disabilities. The law promises to significantly influence school design for years to come.

Although the ADA has been in effect for several years, compliance often falls short. When performing ADA assessments on public schools in Florida, John Salmen, president of Universal Designers & Consultants, Rockville, Md., identified numerous problems.

For example, many schools had not maintained the work originally done to comply with ADA requirements, had minimum levels of accessibility, and generally lacked required signs, assistive listening systems, and accessible food service lines.


NOT POSSIBLE TO HAVE TECHNICAL WORK STATIONS BETWEEN TABLES
DIFFICULT TO REACH WALL STORAGE CABINETS
ONE STUDENT MAY DOMINATE WORK SPACE
POSSIBLE OBSTRUCTED EMERGENCY EXIT ROUTE
POSSIBLE INTERFERENCE BETWEEN NEIGHBORING STUDENTS
INSTRUCTOR MUST ENCROACH TO SUPERVISE

In addition, most changes made to the schools showed little concern for continuity.

Salmen suspects such shortcomings aren't unique to facilities in Florida. He recommends that school districts hire a consultant who knows all the specialty areas involved—such as food service and athletics—to examine the level of accessibility offered to disabled people.

"Architects rely on the expertise of other disciplines, and they may not be up-to-date on the accessibility issues in other specialty areas," says Salmen. Too, having someone other than an architect review facilities for ADA compliance may lead to program changes instead of more costly architectural solutions. ■

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experiments at the wet sink with a bunsen burner. "There is a need for different kinds of space to accommodate more technology, more automation, and more computer simulation for experimentation," he says.

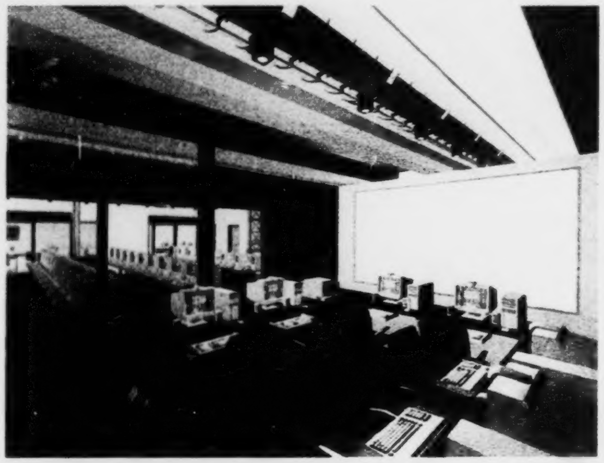
3. Community Use and Involvement

The roles that schools play in the community—and that the community plays in the schools—continue to expand. Taxpayers view schools as community resources. Day and evening, year-round, different groups use school facilities.

"In a suburban area where there is no downtown, the school is the focal point of the community. It's the only social institution in the community," observes Tom Glass, professor of education administration at Northern Illinois University in DeKalb, Ill. And in urban areas, he adds, schools provide not only education but also social services to students.

"Buildings are being constructed for cradle-to-grave use," agrees Rydeen. "No longer is it just an elementary school or high school"—it's a daycare center and a place where senior citizens gather. He notes, "There are no elementary school-size gyms anymore. A city will pay the difference to make the gym adult-size" and available to the community.

These multiple uses call for durable materials, an increase in school size, and spaces and resources that the community can access. Steed Hammond Paul Architects Inc., Cincinnati, Ohio, addresses the trend toward community involvement by first identifying people's values and then translating them into a school design. In one case, the firm discovered that the community placed a high value on being environmentally responsible; in response, the architects incorporated a recycling center into the design of a new elementary school.



The firm's research also indicates that many adults don't feel welcome in their children's schools and classrooms, says Lauren Della Bella, associate vice president of Steed Hammond Paul Architects Inc. "The furniture does not accommodate them, there are no places for them to call their own, and information is often not easily or readily available," she explains. These findings have prompted the firm to design parent/visitor welcome centers, concierge desks, observation and counseling rooms, and parent corners (with adult-size furniture) in classrooms.

4. Demand for Flexibility

Not surprisingly, the desire for community use of a facility—and the need to stretch tax dollars—causes schools to demand that every square foot count. In other words, school districts want large spaces to perform double or even triple duty. As an example, Rohwer cites one school where the cafeteria becomes a lobby for the performing arts center at night. On other evenings, the same space serves as a lobby for the gymnasium.

Because curriculum, enrollments, and priorities may always remain in flux, "We have to build schools that allow for changes," acknowledges Bordwell. "If we design a school correctly, it will be flexible enough to adapt to different kinds of teaching philosophies. The real test will be if a school is being used how the school district wants it to be in 10, 15, or 20 years from now."

5. Inclusiveness

The concept of inclusion, sometimes referred to as mainstreaming, has taken hold in many schools. "This necessitates that the educational system provide learning environments adaptable for students ranging from profoundly disabled to extraordinarily gifted," says Della Bella. The effort also requires more space to accommodate students who have teachers or tutors accompanying them to class. ■

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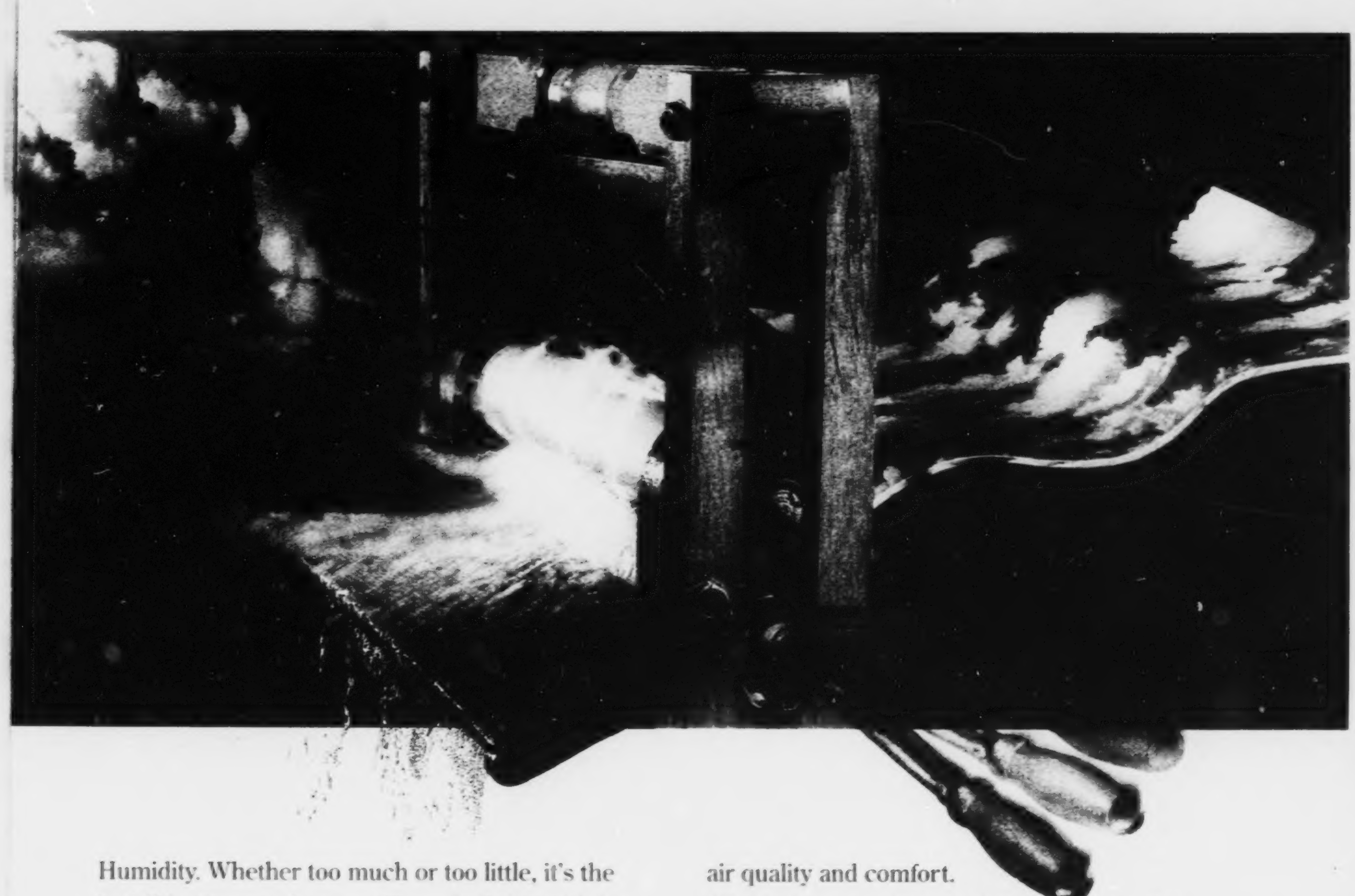

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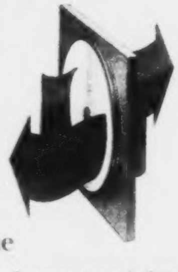

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OUTFITTING A SCHOOL

If you build it . . . you will also have to equip it. Finding the proper furniture and equipment for a school—no small task—can be downright daunting for the uninitiated. To make the process easier for newcomers and veterans alike, here are six helpful hints:

Think technology

The wave of new technology that is finding a place in businesses and homes will inevitably move into schools. In fact, a school district in Texas recently approved the use of a laser disc in lieu of a textbook.

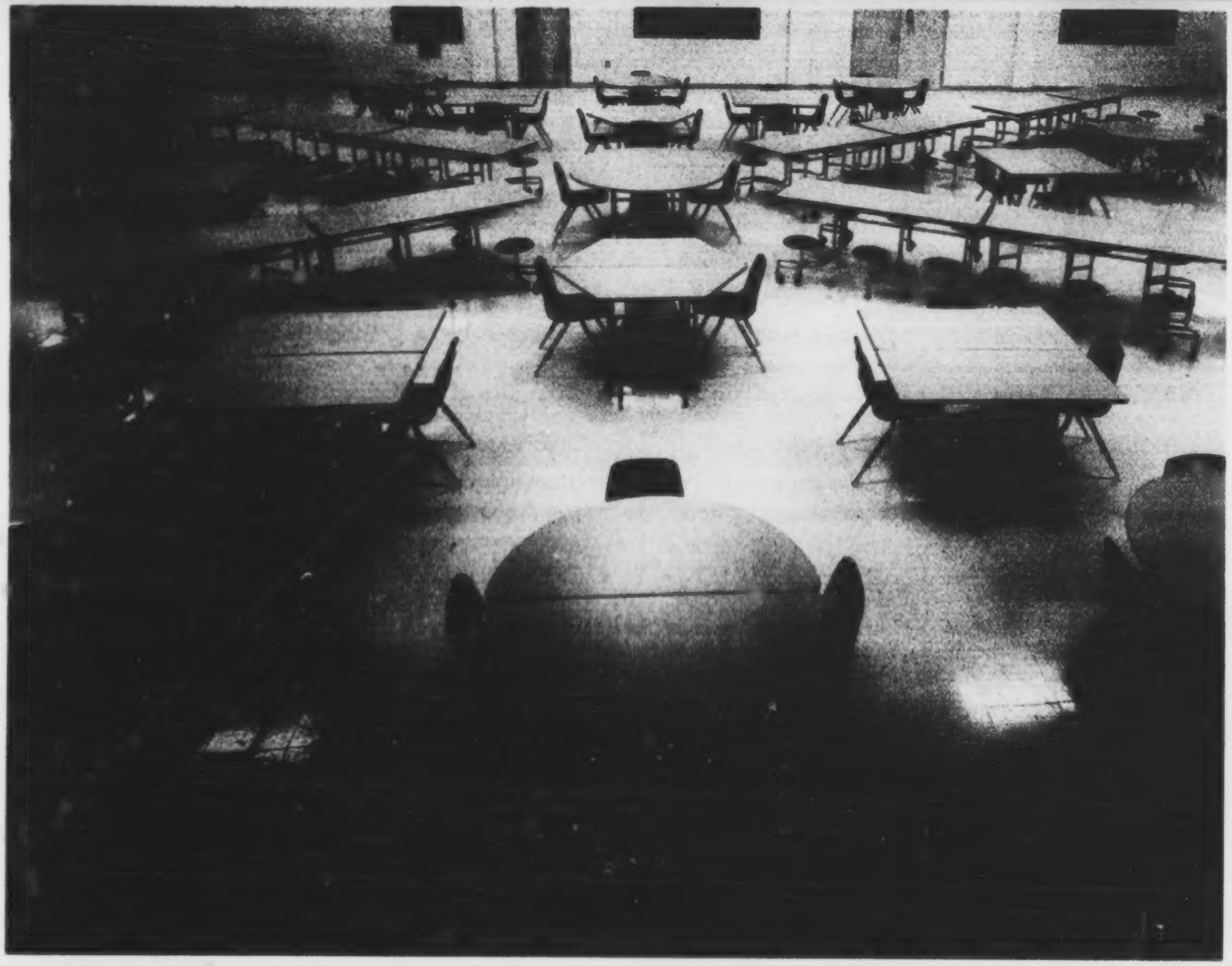
"Parents will demand technology because it is what they are using at work and at home," says Fred Sandborn, chairman of Interactive Learning Systems in Cincinnati, Oh. "Videos and computers can't be ignored by schools."

Educators are also realizing the value of computers as educational tools. "If you want someone to learn, put them in a simulator where they can touch and feel. You have to do, see, and experience to learn," says Sandborn. "This can happen through a computer. Networks connect users to the next room, building, city, or country."

"Smart" classrooms that can accommodate information ports—not just electricity—need to be wired to other classrooms, buildings, administrative offices, and schools, he adds. "No longer will the teacher be in front of the room talking. Now, schools will be able to access the world."

Yet even when you ask for the latest technology, your school system may not always get it. The design and construction process can't keep up with the introduction of new equipment and communication devices. By the time a school is built—perhaps two years after being designed—the once cutting-edge technology has already passed its prime.

How can you avoid this problem? Incorporate flexibility into the design so you can take advantage of the most up-to-date technology available when construction begins.



Select furniture that complements learning and teaching styles

Due in large part to computers, students aren't passively being taught but rather are actively learning. Thanks to interactive instructional techniques, schools must redefine the space in which learning takes place.

"The days when you had 32 kids locked in a box—with 'Miss Daisy' and a textbook as the only forms of communication—are over," observes Sandborn. Now, "a group of kids collaborates. That leads to animated conversations, so you need carpeting, acoustical ceilings, and sound-absorbing work stations. Old floors and old ceilings won't do."

Nor does the traditional chair-and-desk unit provide the flexibility needed to function in modern classrooms. Kathy Day of the KBD Planning Group Inc., in Bloomington, Ind., calls the units "dinosaurs," adding that schools need new work centers to accommodate the new teaching styles.

Science labs have a long-standing tradition of hands-on learning. From an equipment standpoint, however, they need to move into the 21st century, says Tom Glass, professor of education administration at Northern Illinois University in DeKalb, Ill. He recommends a three-part science lab: a classroom equipped to handle the latest technology, a computer center, and traditional lab tables.

Russ DuBose offers a more detailed breakdown. As the regional manager for Sheldon Laboratory Systems, Crystal Springs, Miss., DuBose uses this checklist for designing a modern lab:

- A functional area where the teacher can demonstrate an activity.
- Student work stations.
- Specialized work areas and equipment, such as a fume hood and areas for growing plants.
- A materials storage and handling area, accessible by students.
- A preparation and storage area, accessible only by the teacher.
- Safety features, such as exhaust fans.
- Compliance with Americans with Disabilities Act (ADA) requirements.

Do your homework

Instead of instructing the purchasing department to buy the latest model of whatever you already have, find out what new equipment is available. That may involve looking at what other schools have as well as talking to people in the field. For example, the National Science Teachers Association, the National Science Foundation, and similar organizations can provide the names of people who can answer your questions about lab equipment. And don't overlook the resources within your own schools. Based on Day's experience, school districts have more satisfied end users when teachers participate in the buying decisions.

Another efficient option for researching new products is to attend conventions and trade shows. There, in one place, you can see the range of choices available. "Before purchasing a family car or product for the home, we shop and study

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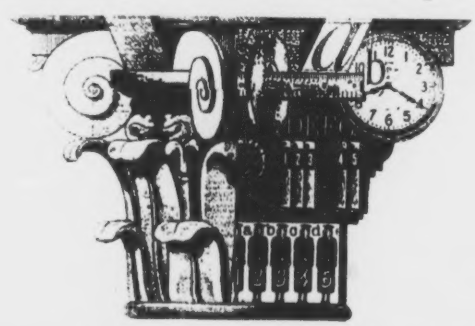
Furnishing for the Future

If you think picking out furniture for your home is difficult and time-consuming, try shopping for classroom furniture. Your charge may sound simple—to determine the types or styles best-suited to your school's educational goals—yet the task isn't.

For example, you'll need to select from among individual student desks and chairs, table-and-chair combinations, table armchairs, chair/desks, study-top combination desks, mobile tables and cabinets, movable or fixed furniture, adjustable or non-adjustable units, and sled-based or four-legged furniture. And those are just a few of your choices.

To help get you through the decision-making process, Don Friesz of Virco Manufacturing Corporation offers this advice:

- Realize that what you have used for the last 20 years may not be appropriate for the future.
- Determine the furniture requirements of your curriculum personnel in view of the district's education goals.
- Make sure work surfaces are large enough for students to write with an open book and offer some arm support.
- Consider adjustable desks and tables for elementary grades. A word of caution: The method of adjustment should be "student proof."
- Take climate into consideration. For example, will the new facility be air-conditioned? Is the climate humid or dry? Will any of the furniture be exposed to the weather? Does warping present a potential problem? What materials would be the most appropriate?
- For safety reasons, specify radius edges rather than sharp corners.
- Ensure that all desk and table surfaces have high-pressure plastic laminates so they stand up to heavy wear.
- Select chair heights carefully. Over the years students have increased in both height and stature, so consult furniture manufacturers for recommendations. It's better for furniture to be too large than too small.
- Consider purchasing sled-based furniture for carpeted areas; it's not suitable for hard surfaces.
- Select stackable chairs and mobile tables for areas that need to be cleared easily. These items prove useful, for example, in cafeterias that double as physical education areas.
- Avoid short-lived trendy colors or clashes between plastics, laminates, fabrics, and wall coverings. ■



competitive products. School districts will spend millions on new construction, furnishings, and equipment, yet not send appropriate personnel to conferences and exhibits to learn about current products and services," says Don Friesz, vice president of sales and marketing for Virco Manufacturing Corporation in Torrance, Calif. "One fresh idea for a new facility will more than pay the expenses of sending personnel to a conference."

Before finalizing your purchasing decisions, Friesz recommends doing a facility layout as a form of troubleshooting. "Before specifying and purchasing products for a new school, lay out in detail where the furniture will go and ensure that you provide adequate room for both current and future needs," he says.

Consider maintenance costs

Often, school districts don't pay enough attention to how equipment will be maintained. For example, inaccessible equipment can be expensive and time-consuming to keep in working order, says Chuck Ryerson, president of Luminaire Services Inc., in Indianapolis, Ind. To reduce initial construction and operating costs, he recommends developing a strategy for maintenance.

Account for wear and tear

No longer does a homogeneous group of people use schools only in the mornings and afternoons. Community groups now look to schools to provide year-round meeting space, continuing education classrooms, libraries, recreation facilities, and auditoriums.

This extended use takes its toll on a building and its equipment. Therefore, says Friesz, it's critical to look at the long-term value of furniture and equipment—quality products are less likely to require frequent replacement. In addition to buying from a company with a proven track record, he recommends this examination of warranties and guarantees:

- Know what is covered and for what period.
- Clarify who pays the freight on replacements.
- If a part is defective, who has the responsibility for installing and replacing it?
- If you must replace the entire product, do you receive full replacement at no cost? Or does the supplier deduct a percentage based on the time the product was used?
- Don't be deceived by unusually long documents, such as lifetime warranties, without understanding all the details.
- Remember that a warranty or guarantee is only as good as the company standing behind the product.

Focus on safety

Increasingly, the courts are holding organizations that deal with the public accountable for the safety of the people who use their premises. Being safety conscious can provide some protection in today's litigious society. Make safety a number-one concern, says Friesz, by:

- Purchasing quality products that offer maximum strength.
- Establishing procedures for examining all furniture and equipment. These periodic inspections ensure that unsafe products are not being used.
- Purchasing from manufacturers that exhibit concern about safety and stand behind their products. ■

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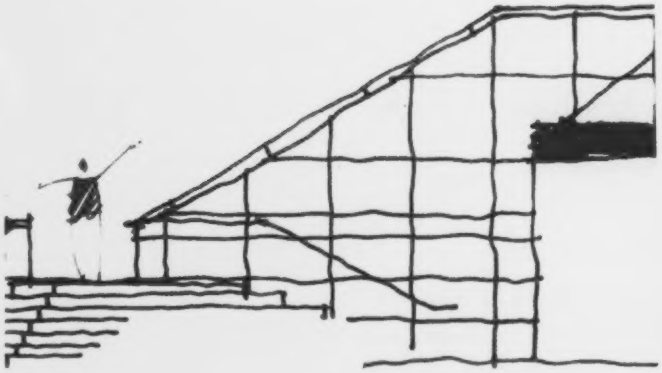
IN SEARCH OF EXPERTISE

When the construction of a new school goes well, a school board can bask in praise for its fiscal soundness and for creating a valuable community resource. When things go badly, however, be prepared to hear accusations of wasteful spending for years to come. Given that choice, you'd probably prefer to be characterized as "fiscally responsible." Of course, that doesn't happen by accident. One key to success in school construction is choosing qualified people to do the job.



Finding an architect

Just being an architect doesn't make a person qualified to design a school. A school is a special kind of facility that calls for an architect who understands everything from shifting educational philosophies to changes in technology to funding concerns.

School boards often underestimate the importance of such expertise, believes Bill Day, senior analyst of the KBD Planning Group Inc., Bloomington, Ind. "The first and biggest mistake that school boards make is selecting an architect who doesn't know the first thing about teaching and learning styles. If we're going to change teaching and learning, we have to change the building to complement the type of instruction," he says. "Architects are not educators, and educators are not architects."

■ The problem can be overcome if the architect includes educational planners and technology planners in the design team. Or you might ask a local design firm, which may not specialize in school construction, to team up with a school specialist.

■ Whatever route you follow, remember that today's consumers are sophisticated and want to have a say in the design and planning process.

■ "A school board should hire a firm that will listen to it and the community," says Lauren Della Bella, associate vice president of Steed Hammond Paul Architects Inc., Cincinnati, Oh. She defines the community as all taxpayers, with or without children in school.

Selection criteria

Ten or 15 years ago, few architectural firms specialized in school construction. Now, with the amount spent on school construction rising, competition has intensified. On the one hand, the competitive marketplace offers you many choices. The downside, however, is that the number of firms interested in working on your project can become overwhelming. How do you narrow the field?

For starters, Day recommends developing a "prequalification" questionnaire. This enables you to determine the capabilities of firms before requesting formal proposals. Your checklist, for example, may focus on a firm that:

■ **Has appropriate experience.** "Match the architectural firm with the project," says Day. "Look at the firm's experience as it relates to your specific project. If a school board is looking for an architect for an elementary school, it shouldn't hire an architect whose last six projects were high schools."

■ **Is the appropriate size for your project.** Day's rule of thumb: The bigger the school system or the city, the bigger the firm you need. Conversely, the smaller the system or the city, the smaller the firm—perhaps 12 to 15 staff members. The size relates to the amount of work the firm has and the personnel it employs to handle projects in a timely manner.

■ **Can help you obtain funding.** Look for a firm with the capability and expertise to help pass a bond referendum—and one that won't forget about the community once the issue passes.

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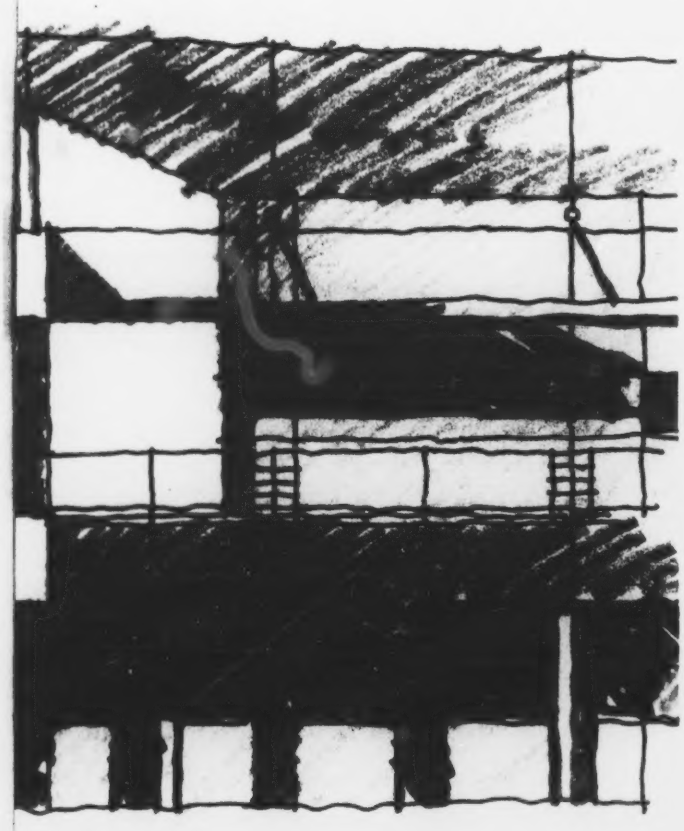


- **Provides the names of at least three educational projects.** Contact the people involved to find out how they like the building and whether the finished product met their expectations.
- **Supplies records of actual bids compared to its estimates.**
- **Provides the name of the day-to-day contact person.** This is a telling question, says Day. A firm may list "John Doe" as the contact on the prequalification questionnaire but send the firm's chairman and marketing manager to the initial screening interview. "You want to see the person who's going to do the work," says Day. And you want to make sure that person has the experience to put the firm's resources to work on your project.

Once you've analyzed the responses, rank the firms. Day suggests inviting the top three or four firms to make presentations. The face-to-face interviews will give you the opportunity to determine a firm's intangible qualities, which aren't discernable from responses to a questionnaire.

"You need an architect you can have an open relationship with, communicate with, and feel comfortable with," says Della Bella. She suggests selecting an architect who will stay in close contact with the board, not one you'll need to track down. Also give consideration to post-project relationships; an architect who won't walk away from the project after the ribbon-cutting is a must. "When there's a problem with the heating system, the architect should be there to solve it—even if it's three years down the road," she notes.

To find out if an architect has the qualities and experience you desire, contact past clients and conduct in-depth reference checks. Determine if the firm has a good track record of developing long-term relationships with other school clients. And, whenever possible, have representatives of your district visit schools designed by the architects you're considering.

When touring these schools, however, don't get too caught up in the "we want that" approach. "The school you're looking at represents the wants and needs of that particular school and community—not yours," cautions Day.

Management assistance

In the traditional owner/architect/general contractor relationship, your school board is the "owner." As such, you can hire an intermediary to act as your agent. Known as a construction manager or program manager, this agent enters the contractual relationship between the owner and the architect. A construction management firm works directly with the architect and the contractors.

As an extension of the owner, the construction manager "fully wears the hat of the district," says Jon J. Danielson, project director for Heery International, a construction management firm based in Atlanta. A construction manager "brings expertise in details and an extra level of expertise and interest that challenges the architect. It also brings added value to services by being able to understand the construction process."

Specifically, a construction manager assists in the development of overall guidelines and procedures for handling a project, such as identifying the scope of the work and setting the schedule. This individual often becomes involved before an architect does; he may even help select the architect.

"At the presentations by the architects, a construction manager can ask the tough questions and understand what the architect is responding to," Danielson says. In addition, a construction manager can assist in the bidding process, oversee weekly construction meetings, and keep track of schedules. During the warranty period the firm can assist you by identifying any items that the contractor needs to correct.

Not surprisingly, those in the construction management industry are quick to point out the advantages of using their services. "You need a professional who knows construction. If you have a heart problem you wouldn't go to a dentist," says Dominick DeSalvo, a principal with D&L Inc., Pittsburgh, Penn. As an example, he cites one school district that saved $2.8 million in return for a fixed management fee of less than $100,000. Another potential benefit of the construction management approach: Your district won't have to expand staff to manage a project only to lay them off when the school is finished.

Most school districts would agree that employing a construction manager makes sense when they're embarking on several construction projects at the same time. Consensus on the value of such services fizzles from that point. Some believe that using a construction manager is always beneficial, while others see the need only in rare instances.

Actually, the choice doesn't have to be all-or-nothing. If your district has a facilities staff and undertakes few projects at once, you might not need all the services a construction manager could offer. In that case, consider retaining a construction manager to do an overall projects review, then turn everything over to the facilities staff.

A statement such as "Renovate the heating, ventilation, and air conditioning system" leaves much room for interpretation— it could mean anything from moving the thermostats to replacing the cooling tower.

Have a plan—and patience

Whether your board goes the traditional route or uses a construction manager, you'll need a detailed plan—not a list of vague generalities. "A common mistake school boards make is that they don't develop a written educational program from which the architect can work. The owner must give the architect a good written program, or the designer doesn't have a clue," says Day.

Danielson, for example, has seen bonds calling for $200,000 in renovations being approved when the board has no specific updates in mind. The reverse—determining the scope of work and then pursuing the funding—works much more efficiently, he observes.

"The process is slowed down when you have to figure how the money will be spent. If a district can invest the time prior to development of a budget, the work will go smoother and it will take less time to get the project underway. If these things are done early on, children and taxpayers get the benefit sooner. And a district won't get into a situation where it has 10 pounds of need but can only afford a 5-pound sack."

A detailed plan also helps avoid misunderstandings, especially when the time comes to put a price tag on construction. A statement such as "Renovate the heating, ventilation, and air conditioning (HVAC) system" leaves much room for interpretation—it could mean anything from moving the thermostats to replacing the cooling tower. And there's a big difference between 'repair' or 'replace' when you're talking about a roof.

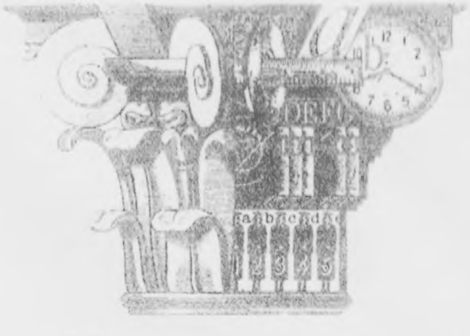
The decision-making process hardly ends with the selection of an architect and finalization of the project specifications. Once a project is underway you'll face many more decisions, large and small. All the while, the clock will be ticking. Slow decisionmaking can drag out a project and drive up costs for everyone involved.

"In today's fast-paced construction industry, boards need to make sure they empower people within the district to make decisions," says Danielson. "The more freedom and confidence a board has in its representative, the smoother and more effective the process."

The process that works for another school district may not work for yours. It all depends on how involved your board wants to be in deviating from the original plan; these adjustments are referred to as "change orders."

Architect Steve C. Olson of Dull Olson Weekes Architects, Portland, Ore., has seen larger school districts appoint a person, committee, or group of staff people to handle questions. In some smaller districts, the board approves everything. In the latter case, Olson recommends meeting more than once a month to keep problems from piling up.

The biggest frustration for people new to the construction process is that nothing goes as well as hoped. Olson observes, "There are going to be bumps in the road. There will be change orders whether you like it or not. It's the nature of the business. So have patience—all problems will get resolved eventually." ■



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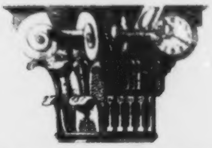

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NEW BUILDINGS

FOREST GLEN ELEMENTARY SCHOOL INDIANAPOLIS, INDIANA

E.I.Brown

E.I.Brown
950 N. Meridian Street
Suite 200
Indianapolis, IN 46204

Dave Blanton, AIA
(317) 237-7000

Design team

Kym Bryant Schoeff, RA

Joe Shaw, RA

Phil Warrenburg, RLA

Jack Lasich
Interior Designer

Client
Metropolitan School
District of Lawrence
Township
(317) 546-4921

Grade span
K-5

Current building capacity
750

Current building area
90,000 square feet

Total project costs
$7.9 million

Cost per square foot
$87

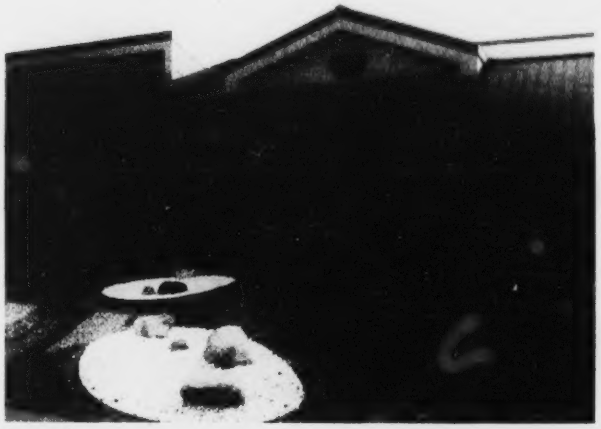
Space per student
120 square feet

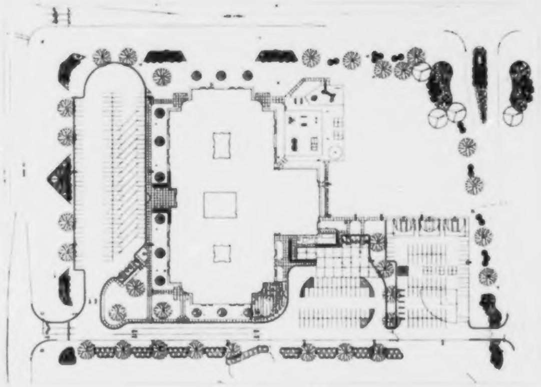
Completion date
August 1994

When the Metropolitan School District of Lawrence Township needed another new elementary school, it turned to E.I.Brown for help to reuse the plans for the very successful Amy Beverland Elementary School.

Forest Glen Elementary School is an international magnet school that draws students from throughout this large metropolitan school system. The facility incorporates an international flavor and provides a dramatic and nurturing environment. The facility is sited within the Fall Creek Valley Middle School and serves as a gateway element in this contemporary educational campus.

The enrollment capacity of this K-5 school is 750 students. The facility includes many unique innovations, including a world time zone display, and fully integrated voice, video, and data technology. It features a language-immersion program in which all core subjects are taught in the target language. ■


Courtyard


Site plan

WHERE IN TIME ARE YOU?
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
EUROPE
Time zone map

Classroom

20
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NEW BUILDINGS

GOVE/GLADEVIEW ELEMENTARY SCHOOL, BELLE GLADE, FLORIDA, AND PINEHURST MIDDLE SCHOOL "EE", WEST PALM BEACH, FLORIDA

GE Capital Modular Space

GE Capital Modular Space
1860 Forest Hill Boulevard
Suite 207
West Palm Beach, FL
33415

Rick L. Schnorr
(407) 434-7760

Design team
Christopher M. Hassall
Architect/Project Manager
John Gray
Andrew Chartwell & Co., Construction Managers
Amir Kazemenia
OCI Inc., MPE Consultants
Cinda Cibulskas
C. Louis Structural Engineers
Mike Schorah
Schorah & Associates Civil Engineers
Paul Verlander
Verlander Landscape Architects

Client
The School District of Palm Beach County
(407) 434-8930

Pinehurst / Gove/Gladeview

Grade span
6-8 / K-5

Current building capacity
1,275 / 970

Current building area
140,231 square feet / 108,403 square feet

Total project costs
$10.8 million / $7.7 million

Cost per square foot
$77 / $71

Space per student
110 square feet / 112 square feet

Cost per student
$8,455 / $7,945

Completion date
August 1995 / June 1995

Based on the highly acclaimed prototype developed by CH•MS Architects, GE Capital Modular Space is currently contracting a number of design/build projects in Palm Beach County, Florida.

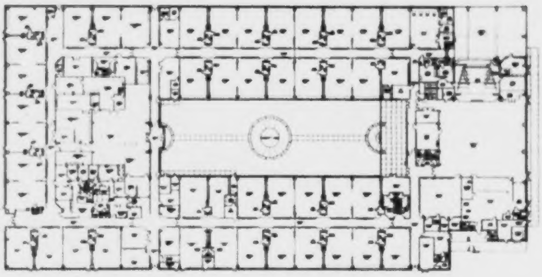
The Academy Series features a very cost-effective, fast-track solution to meet immediate and future educational needs. GE Capital Modular Space not only designs and builds at a fixed cost, but also offers several financing packages. Included as part of the standard package are full construction management services.

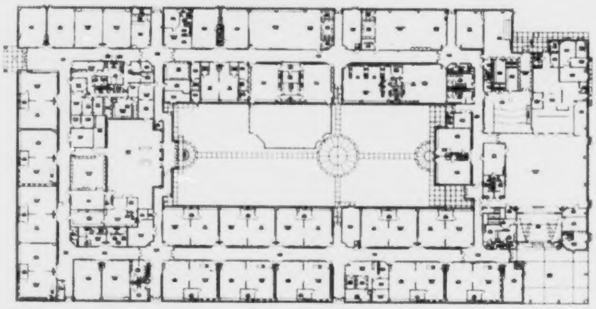
The compact plan form enables the use of smaller sites. The facility itself comes with a variety of maintenance-free exterior finishes, and is constructed out of a pre-engineered metal building, with brick outer walls and standing seam roof (with 20-year warranty). The schedule for on-site construction is a staggeringly low 291 days.

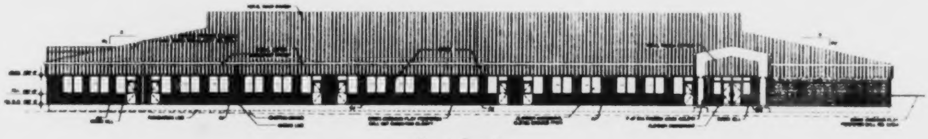
Some of the features of the design are:

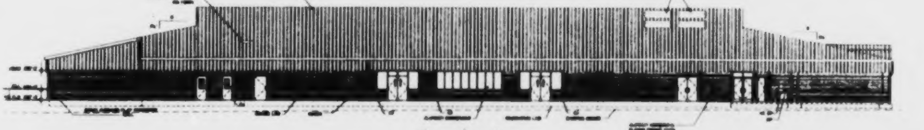
- Block interior walls throughout.
- Limited entry/exit-high security.
- Fully sprinklered throughout.
- Planned for community use.
- Interior/exterior stage.
- Meets all current technology requirements.
- Networked computers/CCTV/intercom system.
- Digital computer HVAC control system.
- Multi-zone AC system, humidity control.
- Back-up generator.
- Meets/exceeds new Emergency Hurricane Protection Requirements in Florida.
- Planned with movable partitions to enable group/team teaching.
- Capable of adaptation from elementary to middle or vice versa.

This innovative approach is exceeding everyone's expectations, and Palm Beach County is committed to expanding its use to meet current and future needs. ■


Elementary school floor plan


Middle school floor plan


Front elevation


Rear elevation

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NEW BUILDINGS

INDEPENDENCE ELEMENTARY SCHOOL/ CHEROKEE ELEMENTARY SCHOOL WEST CHESTER, OHIO

Steed Hammond Paul, Inc.

Steed Hammond Paul, Inc.
Steed Hammond Paul, Inc.
82 Williams Avenue
Hamilton, OH 45015
Michael P. Dingeldein
(513) 863-5441

Design team
Michael Dingeldein, AIA
Project Architect/Designer
Patricia Sumner
Project Interior Designer
Mel Pike
Project Construction Administrator

Client
Lakota Local School District
(513) 874-5505

Grade span
K-6

Current building capacity
800

Current building area
73,155 square feet

Total project costs
$4.8 million

Cost per square foot
$66

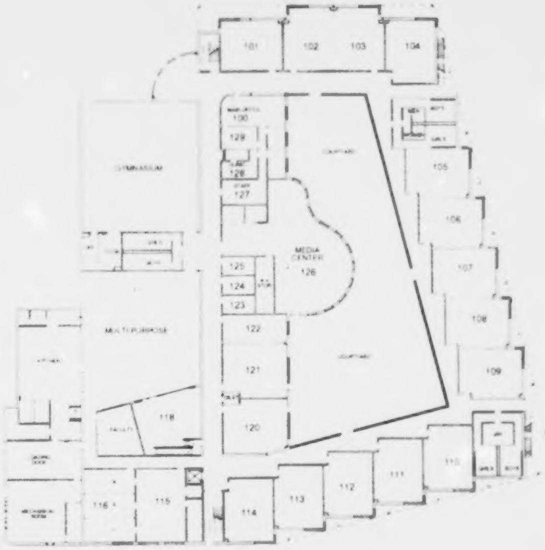
Space per student
91 square feet

Cost per student
$6,053

Completion date
August 1994

This project incorporates a design and programming process that collectively shaped the design of the school from the input of hundreds of "customers" of this new facility. Teachers, parents, students, community leaders, and administrators, as well as architects, engineers, designers, and other experts, brought all of their experience and core values together in a consensus-building process we call the Schoolhouse of Quality℠.

Understanding the school district's core priorities and challenges—and how they uniquely affect


101
102
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STAFF
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GYMNASIUM
COURTYARD
105
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MEDIA CENTER
126
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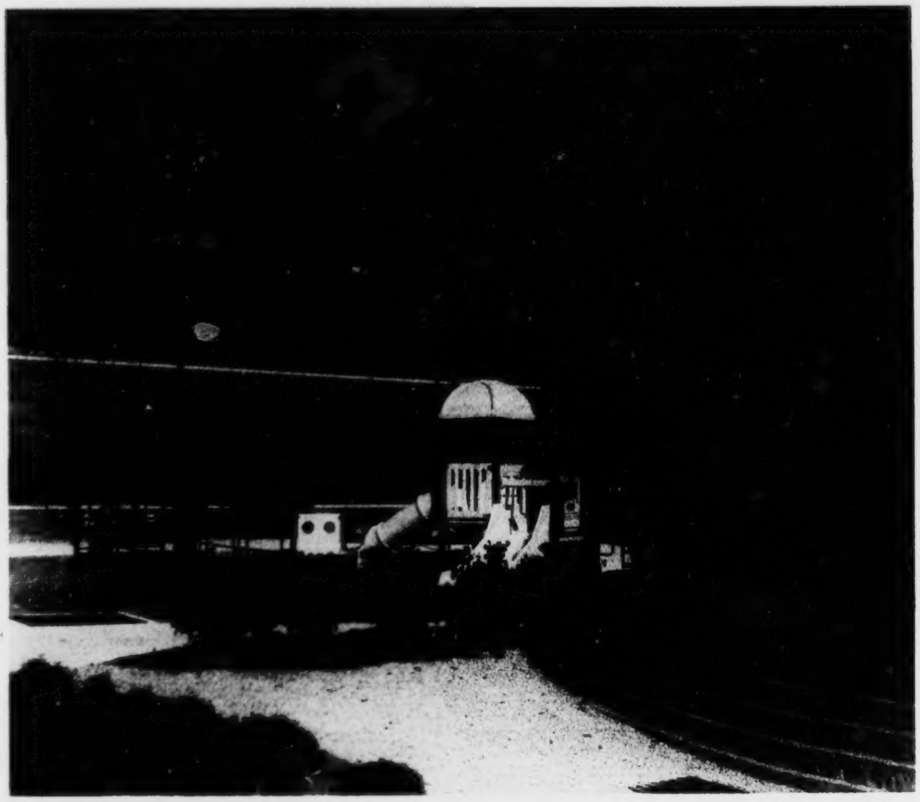
124
123
107
108
122
MULTI-PURPOSE
KITCHEN
121
COURTYARD
109
118
120
110
111
112
113
114
115
116
MECHANICAL ROOM

Main level floor plan

Classroom corridor

the building design—are part of an up-front planning process that establishes goals and consensus prior to final design decisions. Both innovative and long-term standards are brought to the table relative to the design of school facilities, but they are incorporated into the final design based on the specific priorities of the actual "customers" the building serves. The resulting design addresses the unique priorities of those customers in a facility that intimately reflects their needs and in which they find a great sense of pride and ownership. After all, they were part of the process that shaped it. ■



South courtyard

Media center

NEW
BUILDINGS

ANDREW JACKSON ELEMENTARY SCHOOL WILLIAMSPORT, PENNSYLVANIA

Hayes Large Architects

Hayes Large Architects
Logan Boulevard & 5th Avenue
Altoona, PA 16602
Richard L. Karcher, AIA
(814) 946-0451

Design team
Richard L. Karcher, AIA
Principal-in-Charge
Vern L. McKissick, AIA
Project Manager
David B. Albright, AIA
Designer
Russ D. Greaser, Jr.
Job Captain

Client
Williamsport Area School District
(717) 327-5500

Grade span
Pre-K through 6

Current building capacity
750

Current building area
88,200 square feet

Total project costs
$8.7 million

Cost per square foot
$99

Space per student
117 square feet

Cost per student
$11,600

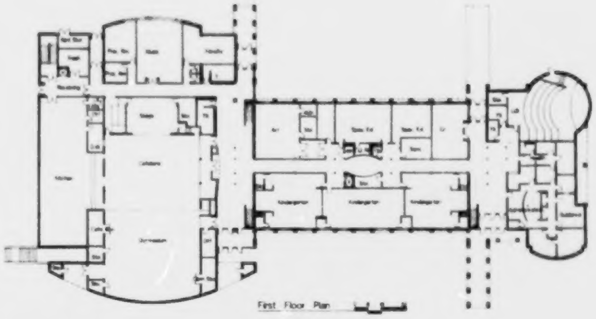
Completion date
August 1993

The three-story Jackson Elementary School, completed in 1993, serves 750 students. The neighborhood is shifting from older couples to younger families, necessitating a larger elementary school. Built next to the smaller, outdated existing school, the new building was completed before the existing school was demolished to provide new play areas.

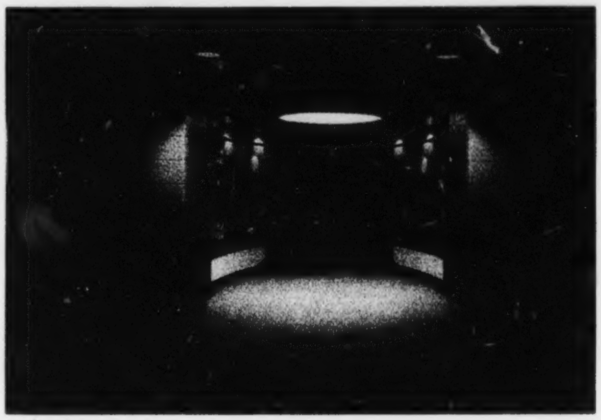
Set into a sloping site, the school is accessed on one side by bridges. Glass-enclosed stair towers offer students expansive views of the site. Separate hard and soft play areas are provided for older and younger age groups.

A neutral color scheme serves as a backdrop to students' colorful work, while columns and end walls are accented with rich colors. An oval centrum on each floor provides a colorful focus for student work.

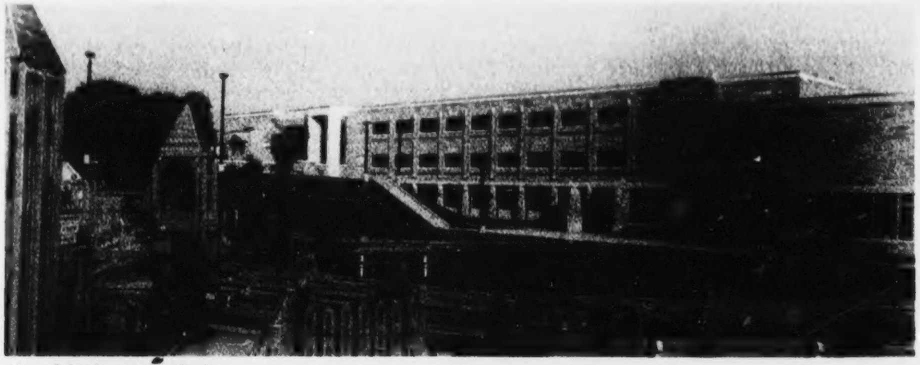
The school features seminar, technical education, art, and music rooms and faculty spaces. Kindergartens on the ground floor access a separate play area. The library, computer room, and the circular large-group instruction area are near the main entrance to serve the community. The building is steel-framed, brick veneer over 8-inch concrete block backup. It is fully air conditioned, with separate air handling units to provide energy-efficient climate control. ■



First floor plan



Oval centrum



View of the three-story school

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NEW BUILDINGS

JEREMY RANCH ELEMENTARY SCHOOL PARK CITY, UTAH

Design West Architects, Inc.

Design West Architects, Inc.
533 South 700 East
Salt Lake City, UT 84102

Gary Acord, AIA
(801) 539-8221

Design team
Gary Acord, AIA
Project Coordinator/Principal-in-Charge

Karl Kirchgasler, AIA
Project Architect

Yau-Zen Tsai, AIA
Project Designer

David Harrison
Quality Control/Cost Estimator

Client
Park City School District
(801) 645-5600

Grade span
K-5

Current building capacity
825 conventional/
1,030 year-round

Current building area
73,200 square feet

Total project costs
$6.5 million

Cost per square foot
$89

Space per student
89 conventional/
71 year-round square feet

Cost per student
$7,882 conventional/
$6,314 year-round

Completion date
September 1994

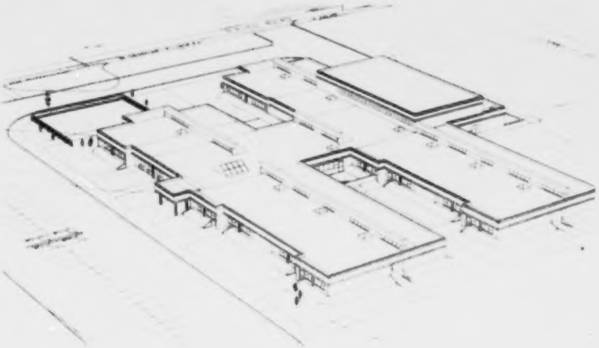
This new school is located on a 13-acre site in the scenic Snyderville Basin of the Wasatch Mountain Range. The school district wanted to focus design considerations around three criteria:

1. Innovative educational and technology features.
2. Energy efficiency.
3. Competitive construction price.

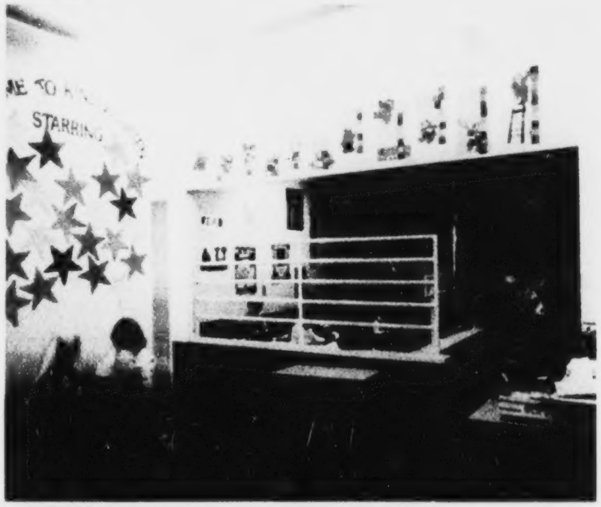
The architectural design responds to the unique requirements of this rapidly growing mountain ski resort community as illustrated by the following educational features: Kiva break-out rooms, satellite conference rooms, teacher preparation rooms, SMH/Headstart rooms, multi-purpose room with operable wall, exterior windows/doors from all rooms in the building, and central media center/computer lab/teacher planning center.

The Jeremy School features passive solar, additional building insulation, natural daylighting, and a simplified mechanical system that results in an annual cost to light, heat, and ventilate the building of approximately $.60 per square foot. That is less than half of the annual cost of other schools in the intermountain area.

The 7,000-foot mean sea level elevation presented unique design challenges, in regard to roof snow load and seismic design. These were met at a construction cost similar to other intermountain area schools located on much less stringent sites. ■



3-D rendering



Kindergarten kiva

Main entrance

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25

ORCHARD VIEW ELEMENTARY SCHOOL MIDDLEBURY, INDIANA

E.I.Brown

E.I.Brown
950 N. Meridian Street
Suite 200
Indianapolis, IN 46204

Dave Blanton, AIA
(317) 237-7000

Design team

Dave Blanton, AIA

Fred Schroeder, RA

Phil Warrrenburg, RLA

Margot Brown Pahud
Interior Designer

Cheri Essmann
Interior Designer

Client
Middlebury Community Schools
(219) 825-9425

Grade span
K-5

Current building capacity
400

Current building area
67,600 square feet

Total project costs
$5.5 million

Cost per square foot
$82

Space per student
169 square feet

Cost per student
$13,783

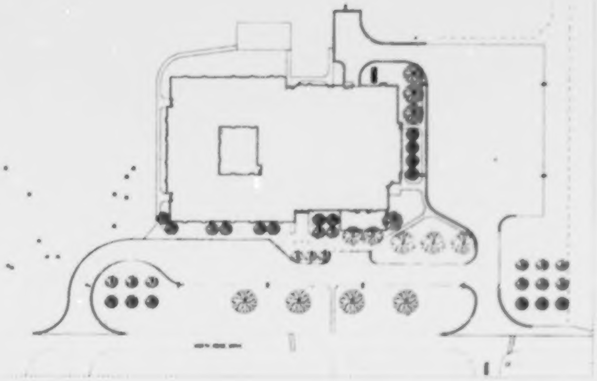
Completion date
August 1994

The design for the new Orchard View Elementary School creates instructional spaces that help achieve the goals of the educational committee. The new three-section school houses 350 students and is located on 15 acres across from the high school and middle school.

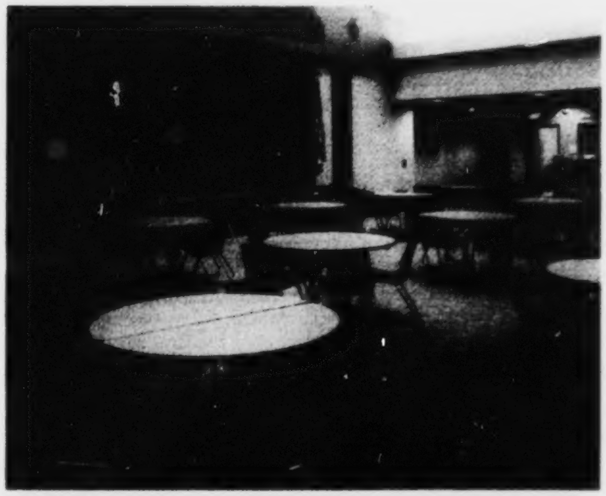
Students come into this facility through a canopied entrance and arrive in the main skylighted lobby. The administration area is to the right, with the media center, cafeteria, gymnasium, stage, and music and art areas beyond. A landscaped courtyard is also located within the building.

The school contains 17 classrooms, two kindergarten spaces, and two special education classrooms. Most rooms have carpeted floors with exposed block walls in a blended, soothing color scheme.

Ample storage space and meeting space are provided throughout the building. Common areas were sized for a projected four-section school. ■

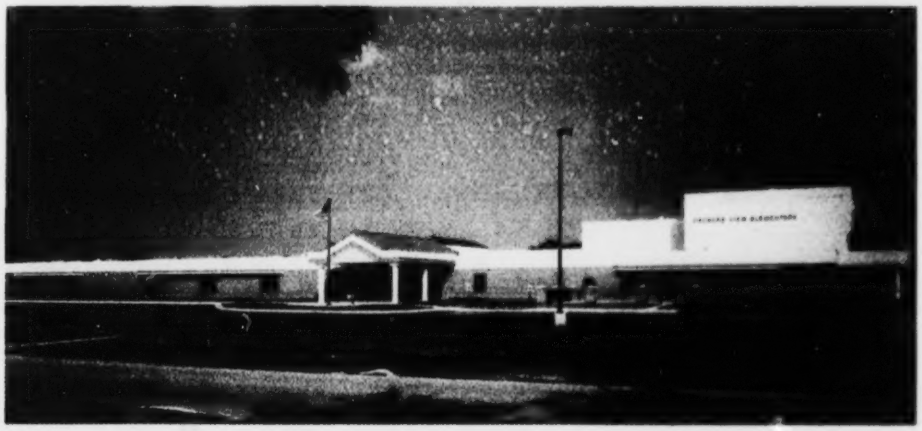


Site plan



Cafeteria/stage

Main lobby



Exterior view

NEW BUILDINGS

PINE BUSH ELEMENTARY GUILDERLAND, NEW YORK

Dodge Chamberlin Luzine Weber, Architects

Dodge Chamberlin Luzine Weber, Architects
Red Mill Road
Rensselaer, NY 12144

Martin Weber
(518) 463-6611

Design team

Martin J. Weber, RA
Partner-in-Charge

Nick Waer, RA
Project Architect

Hana Panek, RA
Design Concept

Snyder Associates
Structural Design

Integrated Building Systems Engineering Consultants, P.C.
Mechanical/Electrical Design

Client
Guilderland Central School District
(518) 456-6200

Grade span
K-5

Current building capacity
750

Current building area
73,800 square feet

Total project costs
$8 million

Cost per square foot
$108

Space per student
98 square feet

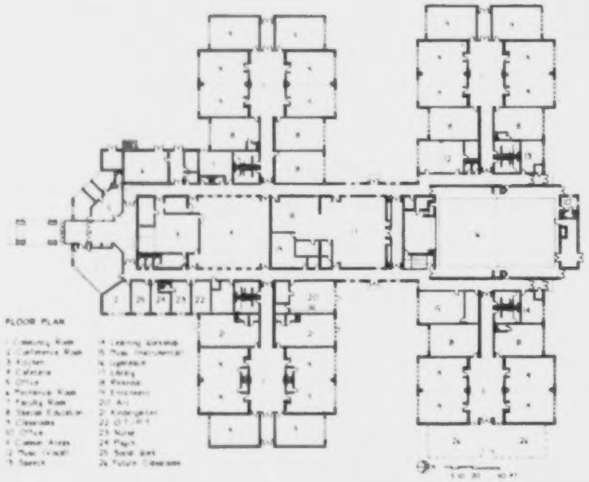
Cost per student
$10,666

Completion date
August 1994

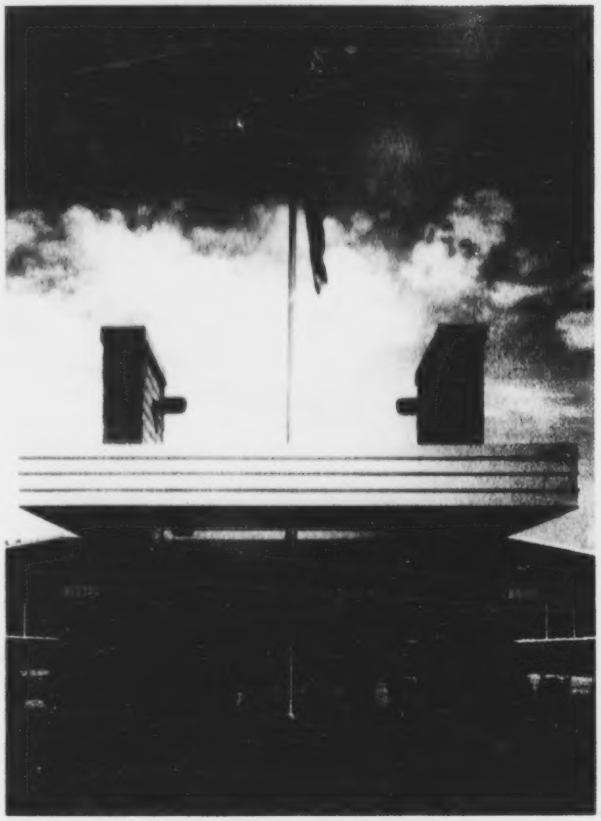
A flagpole waving the red, white, and blue announces the main entrance canopy for this new elementary school with an unconventional floor plan. Bright, airy common spaces create an atmosphere for the interaction and stimulation that are so vital to elementary school education. Classrooms are the "arms and legs" while the "body" or core of the building contains the cafeteria, kitchen, library, and gymnasium. The administration area and the community room are at the "head" or entry area of the floor plan.

Classrooms are arranged in clusters around four common areas, allowing flexibility for team teaching while maintaining an identity for the different grades and levels of child development. For ease of orientation and identification, each cluster is coded by means of an accent color—red, blue, yellow, and green—on the floors, walls, lockers, and built-in cabinetry. A regulation high school-sized basketball court allows the use of the facility by the public and by the high school team as needed.

An aggressive project delivery schedule, with only nine months for construction, created an atmosphere of cooperation among all parties to produce an outstanding addition to the educational facilities of the Guilderland Central School District. ■



Floor plan



Entry canopy

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RAWSON ELEMENTARY SCHOOL SOUTH MILWAUKEE, WISCONSIN

Plunkett Raysich Architects & Interiors

Plunkett Raysich Architects & Interiors
10850 W. Park Place
Two Park Plaza
Milwaukee, WI 53224
David Raysich
Partner In Charge
(414) 359-3060

Design team
Kim Dale Hassell
Vice President, Educational Division
Jim Schinneller
Project Architect
Michael Sobczak
Project Designer
Ron Gurnik
Construction Administration
Nancee Ariagno
Senior Interior Design

Client
School District of South Milwaukee
(414) 768-6300

Grade span
K-5

Current building capacity
550

Current building area
82,528 square feet

Total project costs
$7.8 million

Cost per square foot
$67

Space per student
150 square feet

Cost per student
$10,097

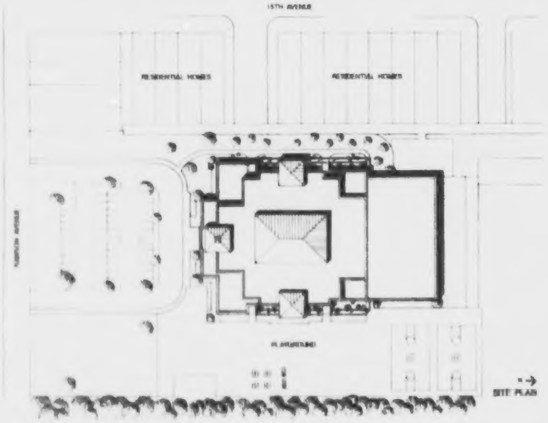
Completion date
September 1994

The owner's requirements for Rawson Elementary School included: replace an outdated existing 1930s school with severe space, mechanical, and accessibility problems; create a new elementary school (grades K-5 and special education) for 550 students, expandable to 650; create classroom space that fosters group instruction; create a library as a focal point for the school; and create an image for the school that is undeniably an elementary school. The result is an 82,528-square-foot building with a cost of $7.8 million.

Due to the compact urban site, the resulting design solution is a two-story school with a central two-story library. Surrounding the library, classrooms are grouped into three-room houses for each grade level. Each house of classrooms is grouped around a shared alcove space for display and group instruction. Additionally, a movable wall is included in each house to accommodate shared instruction. The design incorporates an oversized, multipurpose gym for community, high school, and the elementary schoos' use. Features of the gym include a moveable wall that allows partial use of the gym for cafeteria use, a serving kitchen, and a stage.

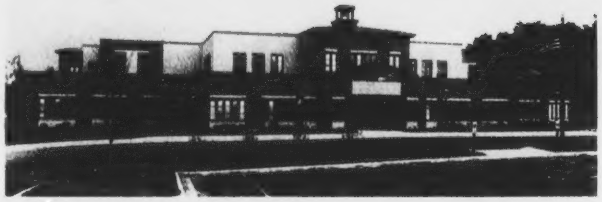
Throughout the building special attention was paid to the use of pattern, scale, and color to create a school that is unmistakably an elementary school.

The exterior materials include face brick, operable windows, porcelain tiles, and a standing-seam metal roof. The technology package for the building includes a cable tray and provisions for voice, video, and data throughout, providing maximum flexibility. The mechanical system is controlled by a computer management system. ■



Site plan

Library



Entrance elevation looking northeast

NEW BUILDINGS

THORNTON CREEK ELEMENTARY SCHOOL NOVI, MICHIGAN

Coquillard/Dundon/Peterson and Argenta

Coquillard/Dundon/ Peterson and Argenta
3000 Town Center
Suite 1515
Southfield, MI 48075
John P. Argenta, RA
(810) 354-2441

Design team
John P. Argenta, RA
Principal-in-Charge
Mark A. Lynden
Project Designer
Brian J. Smilnak, RA
Project Director

Client
Northville Public Schools
(313) 344-8441

Grade span
ECD, K-5

Current building capacity
600

Current building area
70,000 square feet

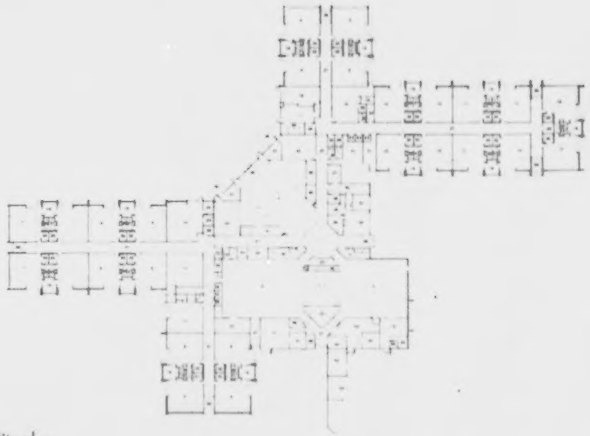
Total project costs
$5.2 million

Cost per square foot
$74

Space per student
116 square feet

Cost per student
$8,666

Completion date
June 1993



Site plan

Thornton Creek Elementary School was designed for 750 students on a 17-acre site. The "L" shape of the site called for four double-loaded classroom corridor wings leading away from a central core.

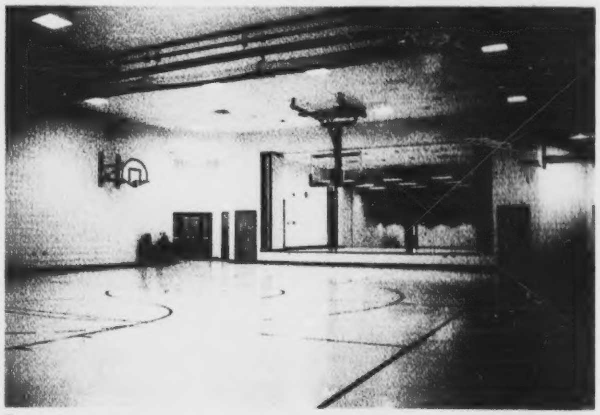
The classroom wings consist of 20 classrooms housing grades 1-5; two kindergarten classrooms; four early childhood development classrooms; and special areas designed for music, art, health, speech, reading, and special education.

The central core of the building serves as the main entry and houses the administrative and public areas, including the gymnasium, cafeteria, platform, instructional materials center, and computer and production rooms.

Also contained within the central core are public toilets and kitchen facilities. This allows the core to be secured from the classroom wings for after-hours community functions.

The air-conditioned building is constructed of concrete block and brick veneer and covered by a sloping shingled roof.

A single-point access to the site allows for control of incoming vehicles; pedestrian circulation is separated from vehicular by a bus drop-off lane that surrounds the main entry canopy. Community recreation and activity on the site is fulfilled by soccer and baseball fields. ■



Gymnasium

Exterior

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NEW BUILDINGS

DISCOVERY SCHOOL FARGO, NORTH DAKOTA
HGA Educational Design Group

HGA Educational Design Group
1201 Harmon Place
Minneapolis, MN 55403

Ted Rozeboom
(612) 337-4100

Design team

Loren Ahles
Designer

Mark Foss
Project Manger, Foss and Associates

Bruce Jilk
Educational Planner

Ted Rozeboom
Principal-in-Charge

Client
Fargo Public School District
(701) 241-4801

Grade span
8-9

Current building capacity
1,600

Current building area
200,000 square feet

Total project costs
$11.2 million

Cost per square foot
$56

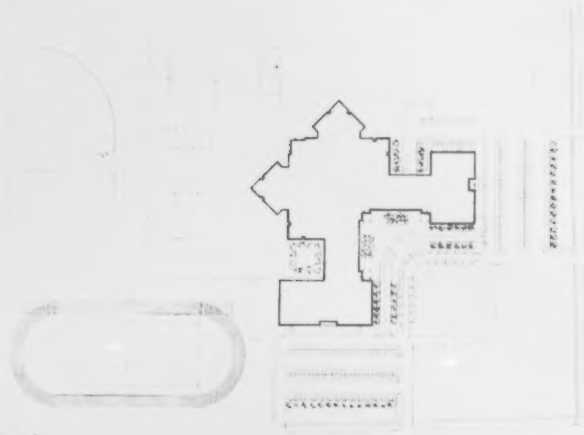
Space per student
125 square feet

Cost per student
$7,000

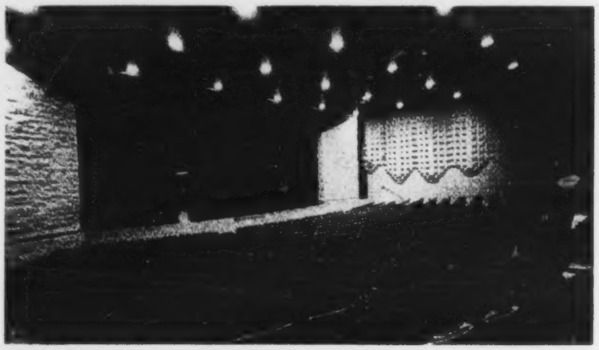
Completion date
August 1994

The new Fargo Discovery School is a response to the enrollment-driven need for a new middle school by Fall 1994. A new site was purchased—an undeveloped parcel of agricultural land on the periphery of a growing residential development. In addition to the school, the site is master planned for a community swimming pool and for shared playing fields with the Fargo Parks District.

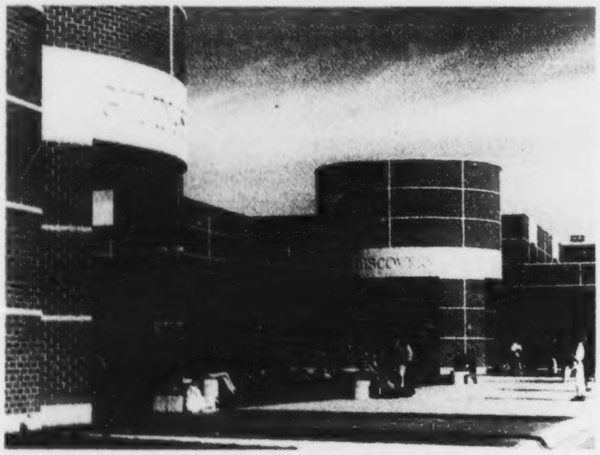
The school is designed as a resource-based middle school with a centralized IMC and academic teams, or "houses," of 125 students each. True to the middle school concept, the school provides an environment conducive to interdisciplinary teaching, a sense of community for groups of houses, flexibility for learning group sizes and configurations, and proximity to resource areas. Allied arts spaces are interspersed throughout the team areas. The school integrates special education programs, multiple media, computers, and art to create a multifaceted learning experience.



Site plan



Auditorium



Exterior detail of view of entry nodes

The building is organized into three blocks. The center block includes the combined academic/allied arts function, student support staff, and the IMC as its focus. The physical education/athletic programs are in another block, which has a separate community entrance and can be separated from the academic area for security and after-hours functions. The third block holds the auditorium and large-group music rehearsal rooms. Like the physical education block, this area has a separate community entrance and can be closed off from the rest of the school. ■

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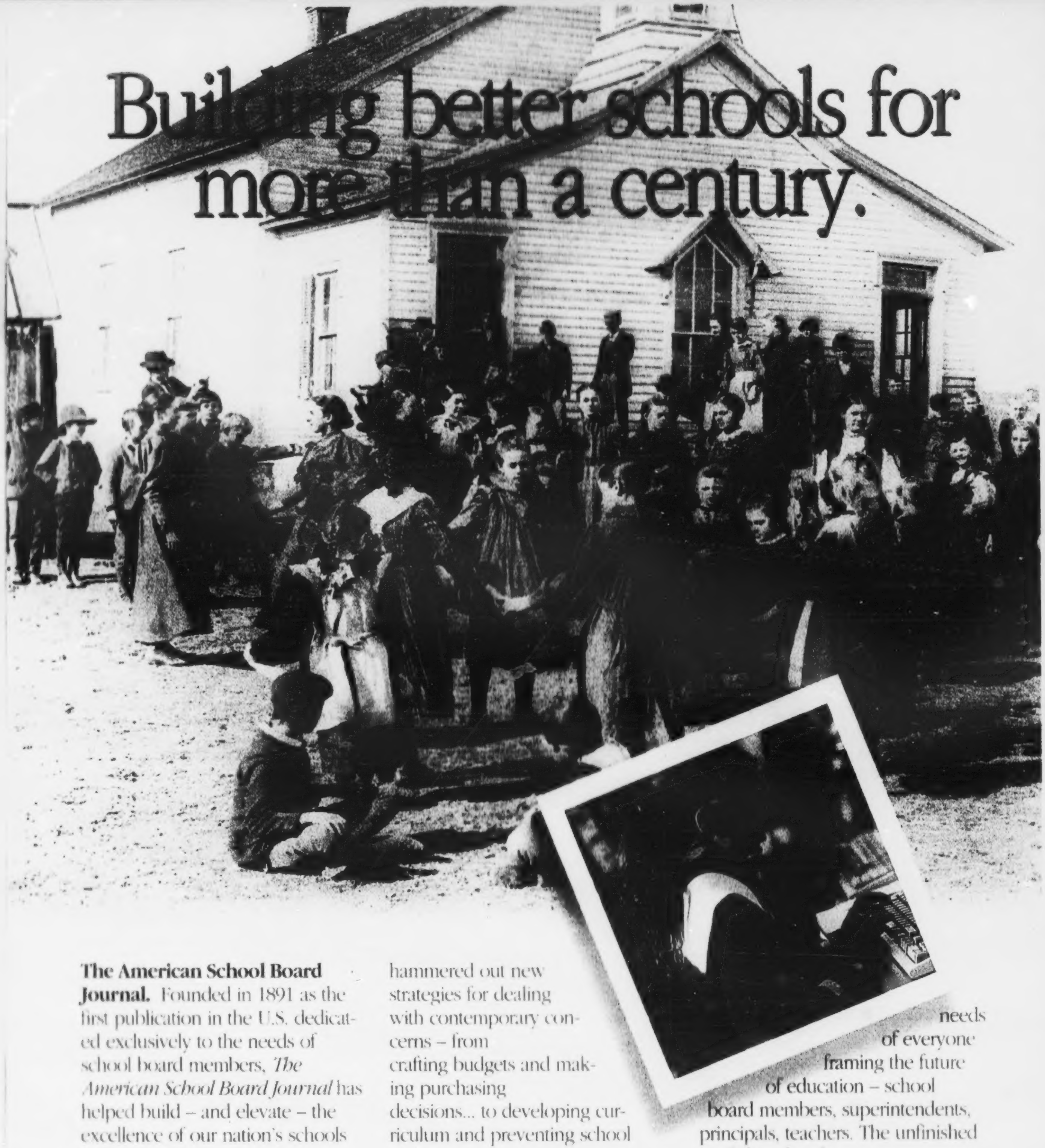

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Through its unique blend of comprehensive reporting, practical advice, and informed commentary, *School Board* has nailed down critical issues in education. Shaped policy and opinion. Re-tooled the role of school administrators. And hammered out new strategies for dealing with contemporary concerns – from crafting budgets and making purchasing decisions... to developing curriculum and preventing school violence.

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NEW BUILDINGS

HAMILTON SOUTHEASTERN JUNIOR HIGH SCHOOL FISHERS, INDIANA

Fanning/Howey Associates, Inc.

Fanning/Howey Associates
3750 Priority Way South
Drive, Suite 110
Indianapolis, IN 46240
Daniel R. Mader, AIA
(317) 848-0966

Design team
Daniel R. Mader, AIA
Principal-in-Charge
Ronald H. Fanning, AIA, PE
Back-up Principal-in-Charge
Charles R. Tyler, AIA
Project Manager
Randall L. Sprunger, AIA
Project Designer
Gerald F. Kinyon, PE
Structural Engineer
Alvaro Villalta, EIT
Electrical Designer
Ronald J. Hunt
Mechanical Designer
James K. Perkins, ASLA
Landscape Architect
Sandra M. Kate
Interior Designer
Garry E. Webb
Construction Administrator

Client
Hamilton Southeastern
Schools
(317) 594-4100

Grade span
6-8

Current building capacity
1,000

Current building area
171,000 square feet

Total project costs
$13.6 million

Cost per square foot
$80

Space per student
171 square feet

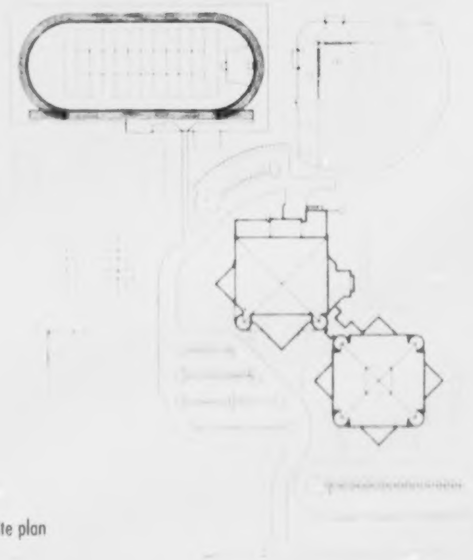
Cost per student
$13,600

Completion date
1993

The new Hamilton Southeastern Junior High School was designed to house 1,000 students in grades 6-8. The 171,100-square-foot facility accommodates traditional classroom spaces positioned around a centrally located two-story media center. This two-story element is capped with a skylight that brings natural light into the heart of the academic portion of the building. Using a variety of techniques, this natural light is introduced into the interior academic classroom spaces.

The design is flexible in that it will respond to departmental or interdisciplinary team curricula. An intentional distinction is made between the academic/quiet areas and the community/activity areas of the building. The academic portion of the building is developed on two stories to minimize the floor plate of the plan, thereby reducing passing times, making efficient use of the site, and balancing the building volumetrically. The rotation of the second floor creates student entries and reduces the overall scale of the building.

The community accessible portion of the building houses a 1,000-seat spectator gymnasium, an auxiliary physical education gymnasi-


Site plan

Interior entry

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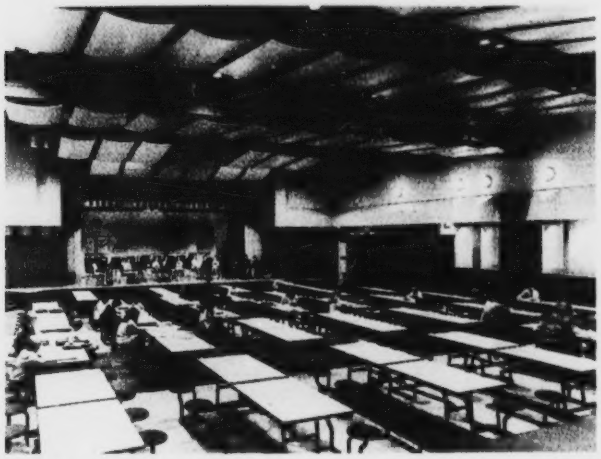
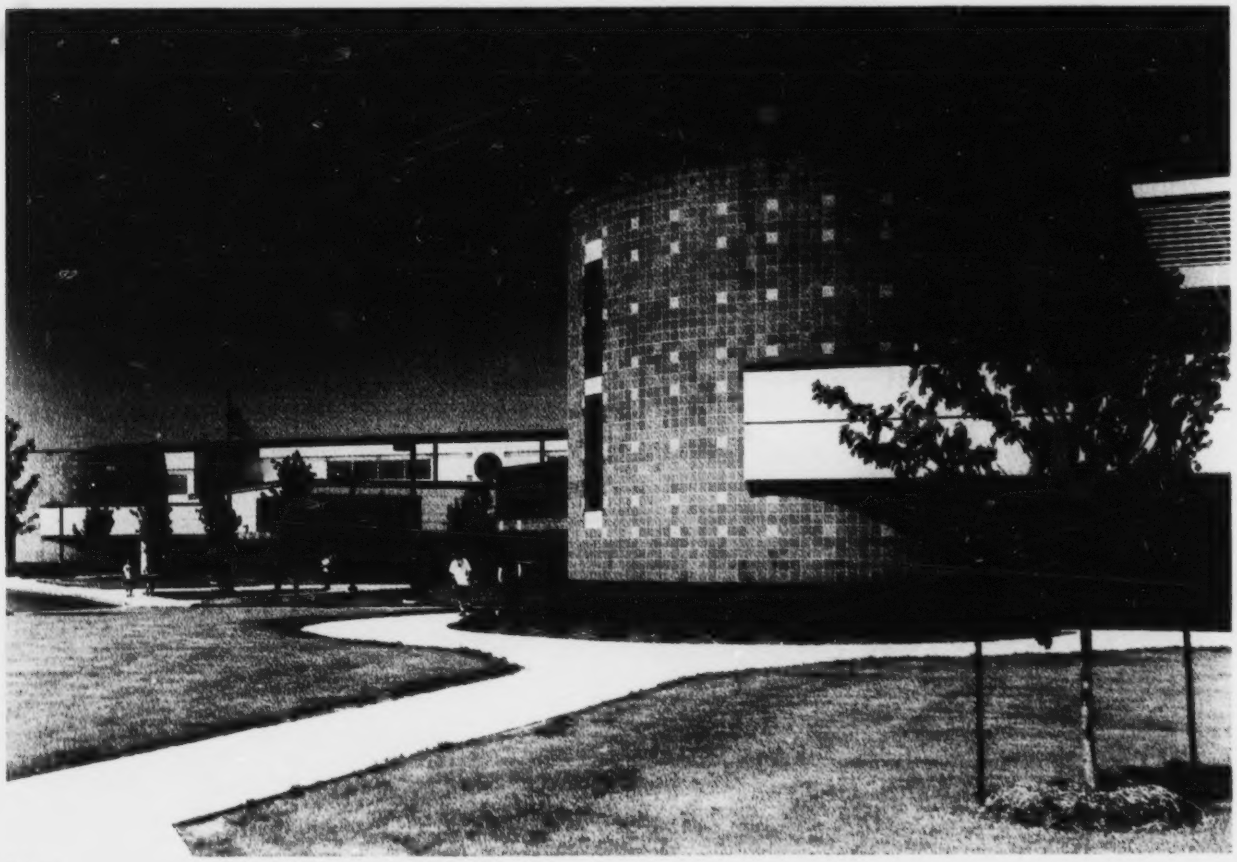


Auditeria

Tiered music room

um, and a 500-seat auditeria. The auditeria concept provides for a space designed as an auditorium in all respects except that the seating is movable. Flexible use of the space is achieved by providing seating for 300 at tables, to house the school's cafeteria. These areas are served by a publicly accessible lobby to facilitate extensive community use of these spaces.

The building sits on a 33-acre parcel, south of the existing high school and adjacent to an existing elementary school. Site utilities were developed in a master-planned approach addressing the needs of all three related educational buildings. The site is fully developed, with baseball, football, track, soccer, softball, and tennis all accommodated. The traffic organization provides for separated ingress/egress for bus and vehicular traffic. A separate bus parking area allows for easy student access directly to the academic area of the building. Additional visitor and staff parking is conveniently located to serve the community/activity portions of the building. ■



Exterior

33

MESA VERDE MIDDLE SCHOOL POWAY, CALIFORNIA

The Blurock Partnership

The Blurock Partnership
2300 Newport Boulevard
Newport Beach, CA 92663

Principal-in-Charge
Alan F. Smith, AIA
Senior Partner

Contact
Anne Burger
(714) 673-0300

Design team
Alan F. Smith, AIA
Senior Partner

Client
Poway Unified School District
(619) 748-0010

Grade span
6-8

Current building capacity
1,350

Current building area
106,860 square feet

Total project costs
$18.5 million

Cost per square foot
$173

Space per student
79 square feet

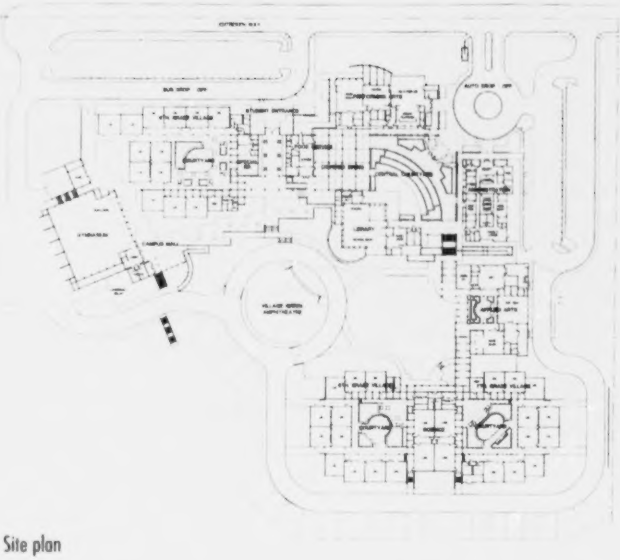
Cost per student
$13,681

Completion date
June 1994

The concept for Mesa Verde Middle School is an academic community composed of "village" clusters. Each cluster radiates around an outdoor cloistered court for impromptu gatherings and formal instruction. Each village, organized by grade level, contains a fully interdisciplinary program. Students leave their villages to utilize school-wide shared spaces. Also included is a space for decentralized administration and staff work.

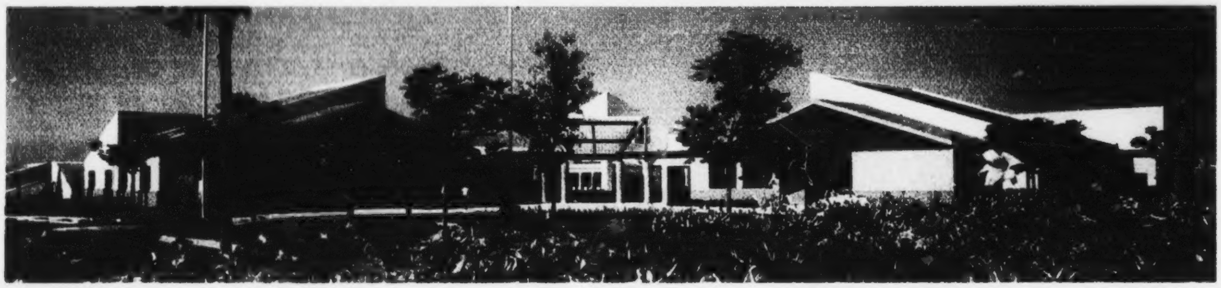
Mesa Verde incorporates technology as a key component to the school and to students' future success. As a result, the school contains a campus-wide data and CATV network. This system is hardware and software neutral, allowing teachers flexibility to select appropriate materials.

The architecture expresses the school as a community. Located at the crown of the hill is the ceremonial acropolis with major public buildings. Flowing out of this space are the village clusters. Linking the elements together are covered streets, constructed with masonry walls to focus views and to form a backbone organization "archeology."


Site plan

The architectural treatment is as varied as possible within the program. Each building is treated individually, drawing from a kit of parts. When viewing the school from the "open space" below, the random character—together with the topographic changes—gives the impression of a hilltop town blending with the surrounding housing development. ■

Library


Main entrance

NEW BUILDINGS

CRAWFORDSVILLE HIGH SCHOOL CRAWFORDSVILLE, INDIANA

R.W. Clinton & Associates, Inc.

R.W. Clinton & Associates, Inc.
4440 Garwood Place
Richmond, IN 47374

George M. Clinton
(317) 966-3546

Design team

George M. Clinton
Principal

Edward G. Soots
Project Architect

Jack B. Shank
Head of Engineering

Jaffe, Holden, Scarbrough Acoustics
Acoustics Consultant

Counselman/Hunsaker & Associates
Swimming Pool Consultant

Client
Crawfordsville Community School Corp.
(317) 362-2342

Grade span
9-12

Current building capacity
800

Current building area
291,670 square feet

Total project costs
$26.7 million

Cost per square foot
$92

Space per student
365 square feet

Cost per student
$33,443

Completion date
August 1993

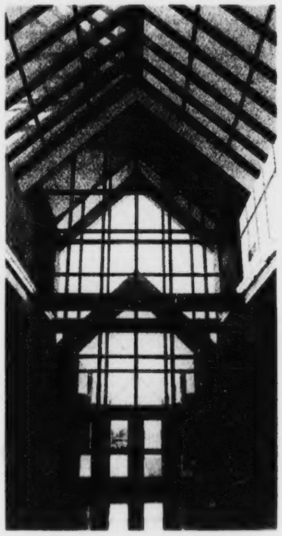
Moving a high school from its existing neighborhood is difficult for tradition-rich communities like Crawfordsville. The benefit of that decision is a new facility for 800 students that incorporates future technology while maintaining a comfortable environment.

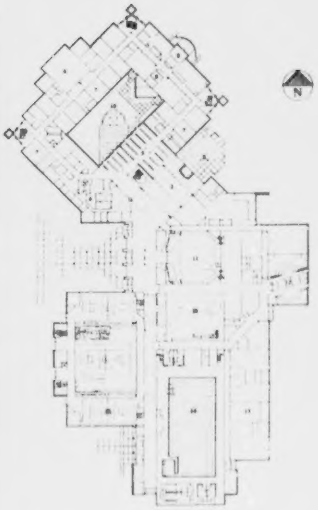
Nearly one-third of the 80-acre site is wooded, with the remaining land flat and open. To preserve this natural setting, the school building nestles into the woods while the athletic fields are in the open land.

The naturally lighted main lobby/commons is the heart of the facility. The cafeteria and locker bay flow from this area and can be secured from the rest of the building. The auditorium is dynamic yet functional for performances.

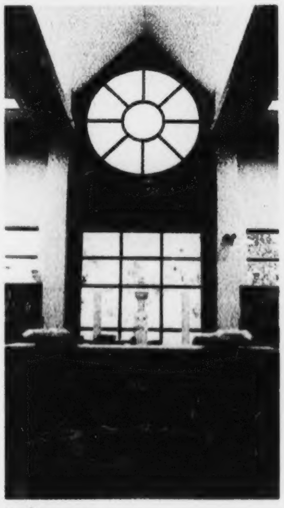
All classrooms have natural lighting and ventilation and views into the courtyard or surrounding woods. Each room is technically flexible and connected to a centralized audiovisual communication system. The media center is two stories high and visible from both corridors through glass walls.

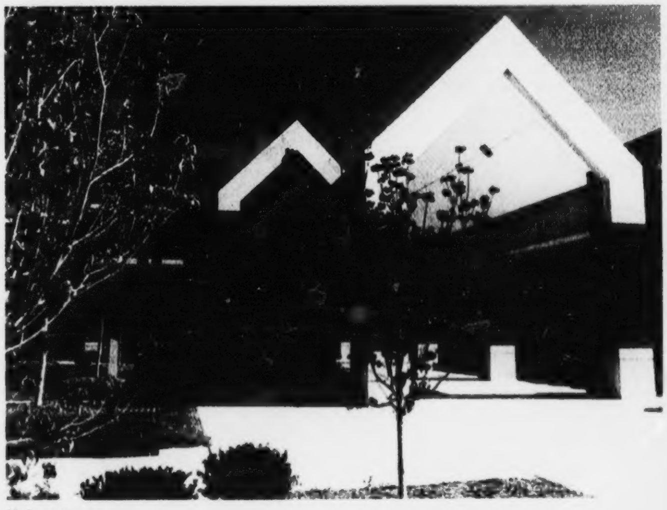
The heavily used gymnasium has a sunken main floor with two upper-level floors and a running track. The natatorium contains both a 50-meter pool and a 25-yard cross course. A shallow pool provides youth instruction and access for elderly and disabled users. This portion of the school is designed to connect to a future community center. ■


Interior entrance



Plan


Media center


Main entrance

CYPRESS LAKE CENTER FOR THE ARTS FT. MYERS, FLORIDA

Schenkel & Shultz, Inc.

Schenkel & Shultz, Inc.
8250 College Parkway,
Suite 203
Ft. Myers, FL 33919
(813) 481-0200

Design team
J. Thomas Chandler, AIA
Principal-in-Charge
Dan L. Fields, AIA
Project Architect
Braga Burton Braswell
Structural Engineers
Burton & Rolley
M/E/P Engineers
Louis Pecora
Acoustical Engineer

Client
The School District of
Lee County, Florida
(813) 337-8311

Grade span
9-12

Current building capacity
400

Current building area
45,216 square feet

Total project costs
$4.1 million

Cost per square foot
$91

Space per student
113 square feet

Cost per student
$10,328

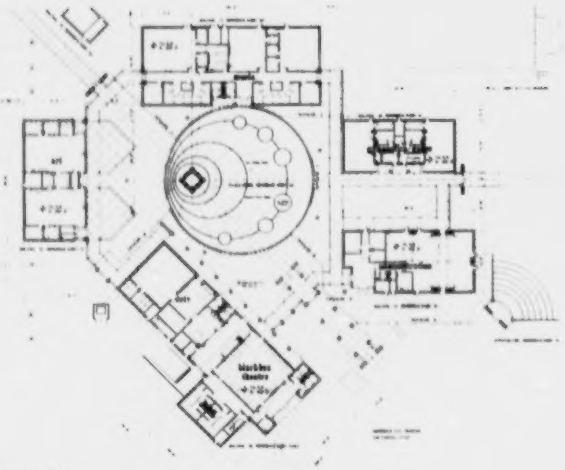
Completion date
August 1994

This magnet school in Ft. Myers, Fla., is a center that provides a comprehensive program of artistic training and creative development to prepare students to excel in music, theater, dance, visual art, and communication arts.

This innovative facility, shared by Cypress Lake High School and Cypress Lake Middle School, consists of five buildings surrounding a piazza where students and faculty congregate. The focal point of the piazza and the campus is a tower at the juncture of directional walkways from the entrance gate, the high school, and the various classroom buildings.

Included in the administration building is an area that can be used as an art gallery or as activity and meeting rooms, by means of movable walls.

The art building contains spaces dedicated to painting and drawing, ceramics, multi-dimensional art, and photography. The theater has a fully equipped TV studio and a black-box studio for theater or radio production. The dance building features high ceilings, observation decks, oak wood flooring, and movable sound systems. Unique floating acoustical panels were used in the music building, which contains spaces for both individual and group instrumental sessions. ■



Campus plan

Center for the Arts

Tower at piazza and classroom buildings

NEW BUILDINGS

GOLDEN VALLEY HIGH SCHOOL MERCED, CALIFORNIA

Architectural Design West, Inc.

Architectural Design West, Inc.
2100 19th Street
Sacramento, CA 95818
Mitch McAllister
(916) 446-2466

Design team
Keith Sorenson
Principal-in-Charge
Mitch McAllister
Project Architect
Dennis Adderley
Job Captain
Mark Morose
Construction Administration

Client
Merced Union High School District
(209) 385-6411

Grade span
9-12

Current building capacity
2,000

Current building area
194,000 square feet

Total project costs
$20.5 million

Cost per square foot
$106

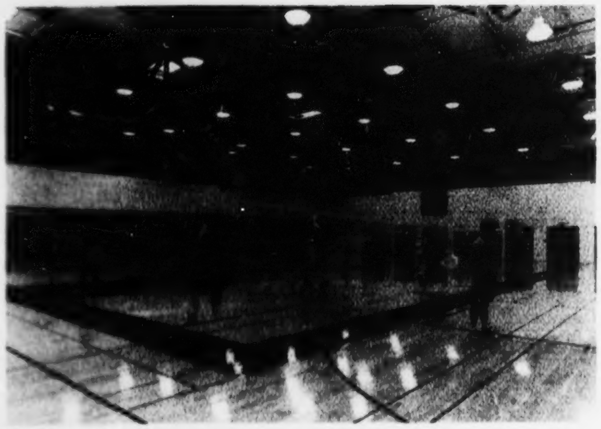
Space per student
97 square feet

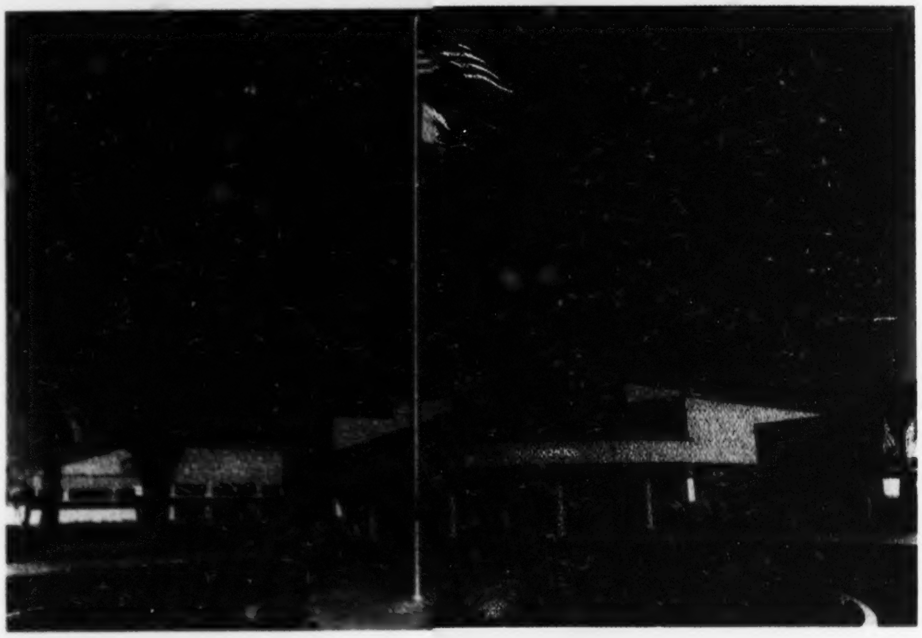
Cost per student
$10,250

Completion date
September 1994

This project presented a number of specific requirements:

- Allow for security and supervision. The plan includes closure of the interior campus with designed gates and fences, allowing a "closed campus" and after-hours closure of the main campus even while public-use areas are left open.
- Create a positive image for the community and for education. The design and materials respond to this through strong entrances to athletic, library/media center, and performing arts areas for community use and through the use of quality materials and inviting scale.
- Provide effective life-cycle value analysis. The design incorporates daylight lighting and other energy conservation measures, including earth sheltering, thermal mass, and energy-management systems.
- Design for year-round education is accommodated through centrally located teacher planning centers and storage for off-track teachers.
- Incorporate educational technology. Systems include a central integrated media-retrieval system and monitor/access in every teaching station, infrastructure for a computer system, computer rooms, video production/distribution facilities, and mainframe systems for management. ■


Gymnasium


Front entry

NEW BUILDINGS

PINE-RICHLAND HIGH SCHOOL GIBSONIA, PENNSYLVANIA

The Eckles Company Architects

The Eckles Company Architects
301 North Mercer Street
New Castle, PA 16101
Robert G. Naugle, AIA
(412) 652-5507

Design team
Robert G. Naugle, AIA
Principal
Richard T. Dybiec, AIA
Timothy J. Hutcheson, AIA
W. Jeffrey Foreman, AIA
Project Architects
Janice M. Engen
Interior Designer

Client
Pine-Richland School District
(412) 443-7276

Grade span
9-12

Current building capacity
1,100

Current building area
172,000 square feet

Total project costs
$17.8 million

Cost per square foot
$103

Space per student
156 square feet

Cost per student
$16,182

Completion date
December 1993

The new Pine-Richland High School is constructed on a 47-acre farmland parcel.

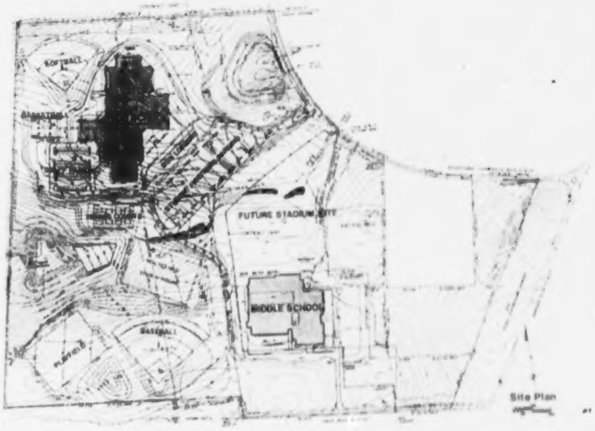
The gently sloping site accommodates the building footprint, access drives, bus loading, parking, practice fields, tennis/basketball courts, and future expansion and stadium.

Main building elements include the commons, which provides gathering space and central circulation to the administration; library; gymnasium; auditorium with balcony, which incorporates the stage with fly gallery and orchestra pit; and the fine arts wing consisting of choral and instrumental music, art, and the TV studio.

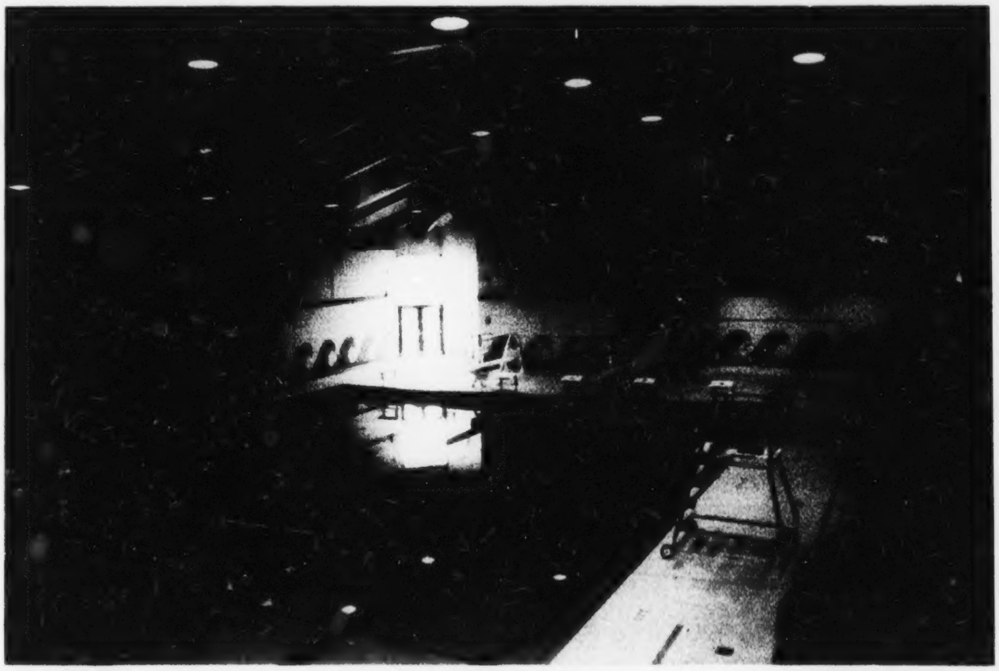
The academic area consists of classrooms of varied sizes and shapes, which surround a core of instructional planning centers, science and computer laboratories, and a planetarium.

A guidance/career center, LGI, business classrooms, student activities, and cafeteria surround the media center. Three home economic labs are grouped with industrial arts, technical education, and CADD facilities.

The physical education



Site plan



Natatorium

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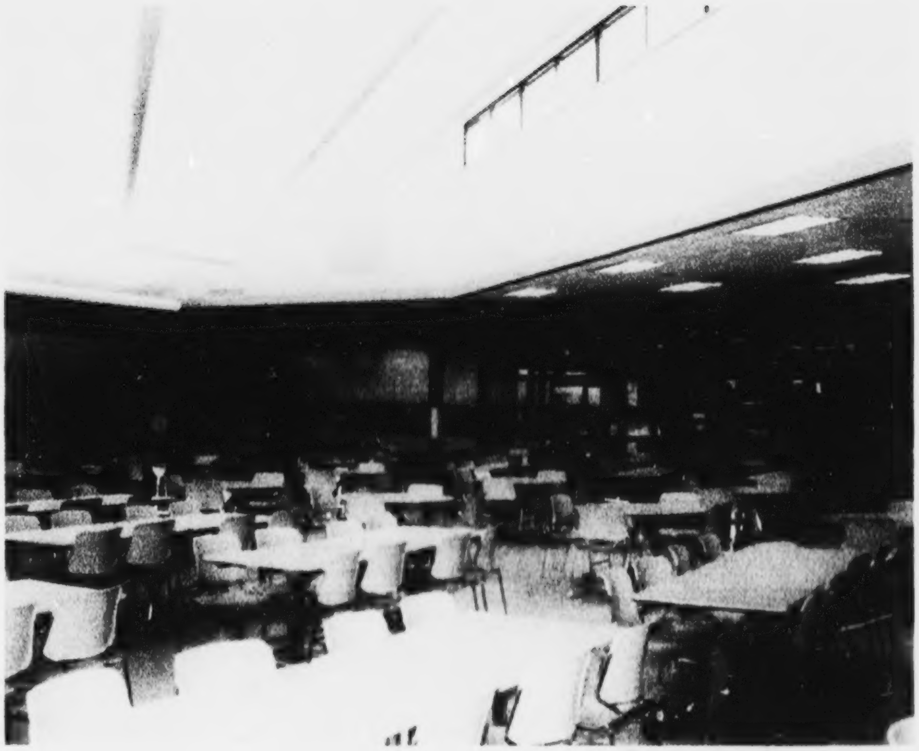
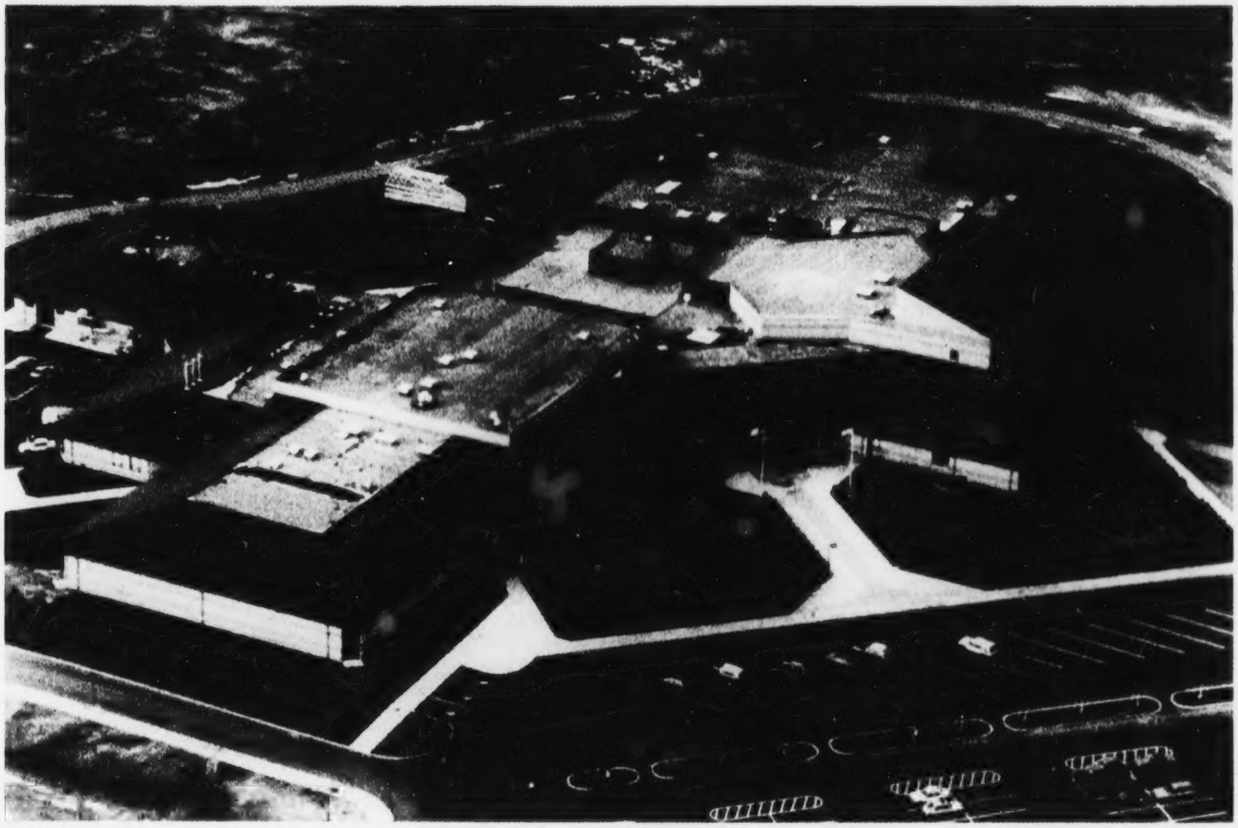
units—consisting of main gymnasium, auxiliary gyms, weight training, natatorium/spectator gallery, and locker rooms—complete the compact and efficient floor plan.

A pitched metal roof around the building perimeter provides "attic space" for storage and mechanical equipment.

Masonry exterior walls and interior partitions provide durable, easily maintained surfaces and sound control. Accessible ceilings were used throughout to facilitate expansion of the building's media communication network. ■



Cafeteria



Aerial view

NEW BUILDINGS

PINE RIDGE HIGH SCHOOL PINE RIDGE, SOUTH DAKOTA

L.A. Olson & Associates

L.A. Olson & Associates
235 Moore Lane
Billings, MT 59101

Mark Olson
(406) 245-9340

Design team
Jim Wertman
Mark Olson
Architects

Fred Sielbach
Civil

Wes Krivonen
Structural

Wade Johnson
Jerry Tillinger
Mechanical

Jim Orr
Electrical

Client
Bureau of Indian Affairs
(505) 766-2823

Grade span
9-12

Current building capacity
400

Current building area
68,000 square feet

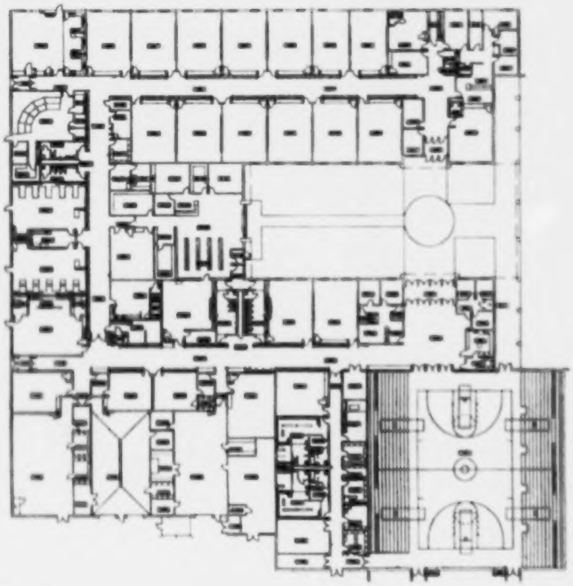
Total project costs
$7.6 million

Cost per square foot
$105

Space per student
170 square feet

Cost per student
$17,850

Completion date
October 1994

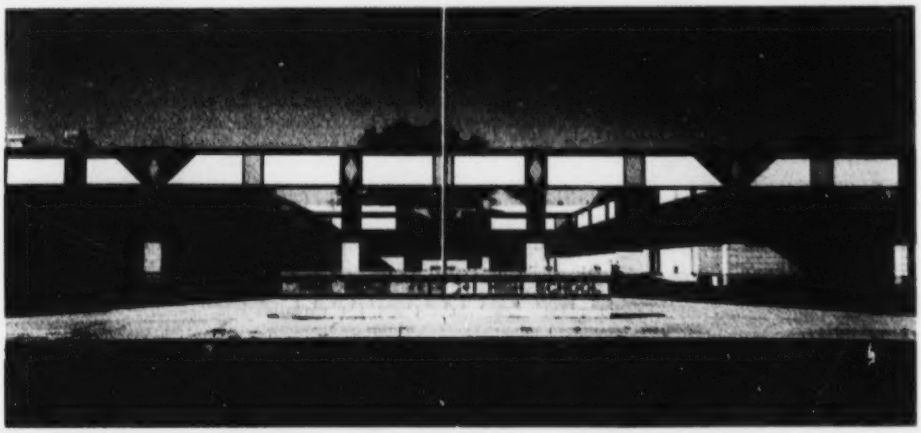


Floor plan

In October 1990, the Bureau of Indian Affairs in Albuquerque, New Mexico, awarded the commission to L.A. Olson & Associates of Billings, Montana, for the design of a new 400-student high school for the community of Pine Ridge, South Dakota. Pine Ridge is located on the Pine Ridge Indian Reservation in south central South Dakota. The project's success hinged on incorporating the library and courtyard into the focal point of the facility. Most of the classrooms face inward to the exterior courtyard. The library has been given specific attention due to the school board's desire to give each student the best education possible and therefore provide the learning center as the main element of the building. The library was also designed so that it has a separate entrance for night use.

The colorfully banded entry colonnade, which faces east, represents the school colors and also provides the gateway to the facility. The shops and gym are located at the southern end of the site and are acoustically isolated from the classroom areas. The gym and locker rooms were placed at the southeast corner so access to the football field and the new parking lot would provide convenience to all. Floor tile patterns and wall graphics reflecting Native American geometric designs were used extensively throughout the building's interior and exterior.

Our hope is that the new facility will provide a great learning center for the students of the Pine Ridge Indian Reservation for years to come. ■



Main entry colonade

NEW BUILDINGS

PROSPECTS CONTINUATION HIGH SCHOOL ANTIOCH, CALIFORNIA

Architectural Design West, Inc.

Architectural Design West, Inc.
2100 19th Street
Sacramento, CA 95818
Mitch McAllister
(916) 446-2466

Design team
Mitch McAllister
Principal-in-Charge
Les Smith
Project Architect
Joe Nicoles, Buchler & Buchler
Structural Engineer
Mike Minge
Capital Engineering
Mechanical Engineer
Tony Soriano
Chase Engineering
Electrical Engineer

Client
Antioch Unified School District
(510) 706-5399

Grade span
10-Adult

Current building capacity
300

Current building area
22,000 square feet

Total project costs
$2.2 million

Cost per square foot
$100

Space per student
73 square feet

Cost per student
$7,333

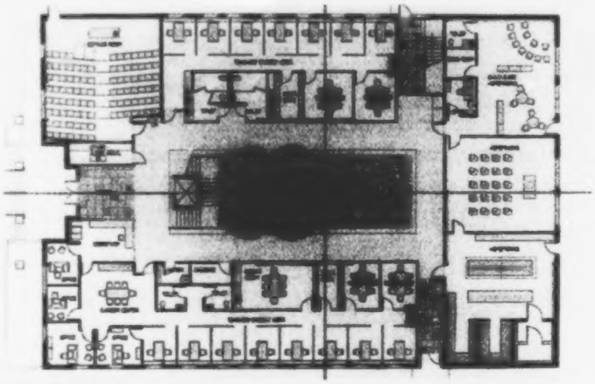
Completion date
December 1993

This school is located in historic downtown Antioch, California. The city provided the site as part of the historic waterfront redevelopment plan. It is adjacent to two historic houses currently being restored and renovated as a city museum and arts commission office.

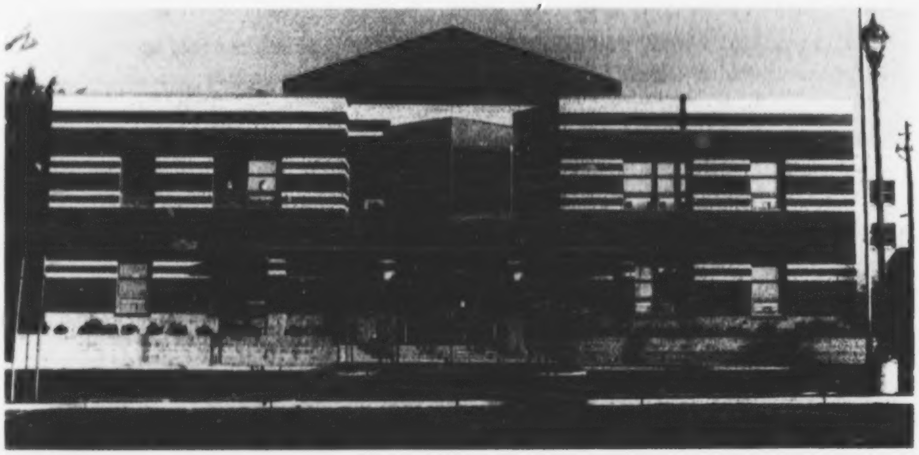
This project presented a number of unique requirements:

- The design had to meet the unique needs of its student body. Architectural Design West, Inc., designed portable walls to adjust to the year-to-year fluctuation in the number of students and the one-on-one teaching environment. Also, a child care center provides in-house day care to encourage young parents to complete their education.
- The overall design needed to blend in with the historic architecture of the area.

The Prospects School operates as an alternative means of education for those students who have dropped out or are considering dropping out of high school. It also provides continuing adult education classes. ■


First floor plan

Child development and day care classroom


Front elevation

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41

NEW BUILDINGS

WESTVIEW HIGH SCHOOL
PORTLAND, OREGON
Dull Olson Weekes Architects

Dull Olson Weekes Architects
319 SW Washington Street
Suite 200
Portland, OR 97204
Florence Shields
(503) 226-6950

Design team
John M. Weekes, Partner
Principal-in-Charge
Jeffrey E. Johansen, Associate
Project Designer
Eric A. Wilcox
Project Architect/Manager

Client
Beaverton School District
(503) 591-4180

Grade span
9-12

Current building capacity
2,000

Current building area
257,000 square feet

Total project costs
$22 million

Cost per square foot
$86

Space per student
129 square feet

Cost per student
$11,000

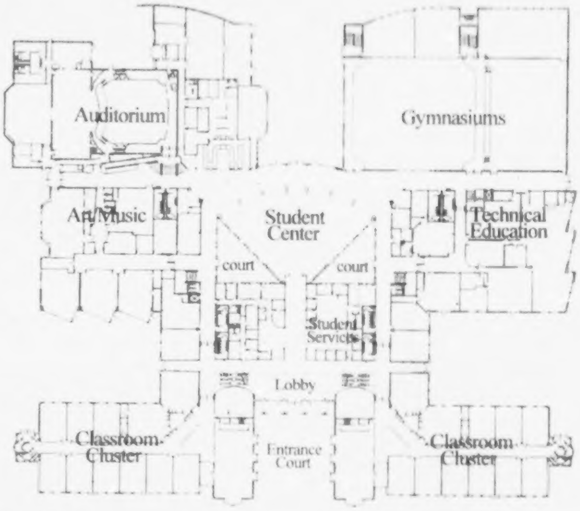
Completion date
September 1994

The new Westview High School serves 2,000 students on a 45-acre suburban parcel circled by residences. The school occupies a prominent place and is surrounded by playfields on its gently sloping site. A lawn inscribed in a oval-shaped drive for school buses provides a forecourt, which aids in establishing the high school's civic presence.

The arrangement of the building represents the goals of the school district's educational specifications, which called for a compact building, maximizing connection among its parts, and supporting interdisciplinary instruction. Conceptually, the building is a single mass with exterior courts carved out to introduce natural light and create exterior rooms for use as educational areas. At the school's heart is the library, student services, and student center.

On the main level, a gallery links the lobby with the student center, a dynamic fan-shaped space structured in contrast to rectangular instructional areas. Adjacent triangular courts provide natural light and an outdoor extension for the student center when weather permits.

An expression was developed for the building that communicates Westview's importance as an institution in the community. Coupled with this civic attitude is a set of experiences within the school that through form, daylight, and vibrant color may inspire creative action. ■



Ground floor plan

Entrance lobby

WESTVIEW HIGH SCHOOL

Main entrance

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The American School Board Journal
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CONCORD ROAD ELEMENTARY SCHOOL ARDSLEY, NEW YORK

Warren-Cornacchini Associates Architects

Warren-Cornacchini Associates Architects
2 Boice Road
Hyde Park, NY 12538
Phillip Zemke
(914) 229-8143

Design team
Howard J. Warren
Principal-in-Charge
Phillip Zemke
Project Architect
Melodie Lewis
Architect
Kevin Ellis
Intern Architect

Client
Ardsley Union Free School District
(914) 693-6300

Grade span
K-4

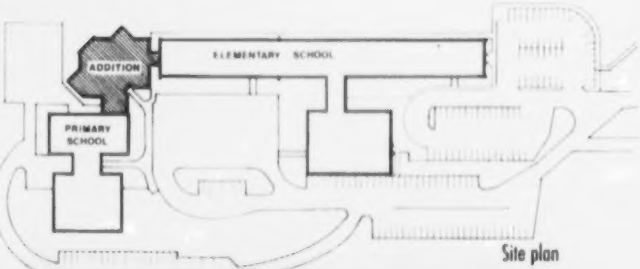
Current building capacity
680

Current building area
73,160 square feet

Building area before addition/renovation
62,360 square feet

Total project costs
$1.8 million

Completion date
September 1993



Site plan

Exterior view, south elevation

To solve space problems caused by rising enrollment and to meet the resource needs of the students, the Ardsley (New York) Board of Education commissioned Warren-Cornacchini Associates Architects to design additional classrooms and an instructional materials resource center at the Concord Road Elementary School.

Working with a committee of Board of Education members, administration, faculty, and interested parents, Warren-Cornacchini designed an addition that provided four additional classrooms, a 4,000-square-foot instructional materials center, and a corridor connecting the existing primary and elementary schools.

As in most infill and addition designs, the existing structures, topography, and land use played a large part in determining placement, circulation, and layout of the new structures.

The existing school buildings were built as separate structures sharing one site. The main axis of each building is 90 degrees from the other. The addition was sited to close in the corner between the two schools, thereby providing a central location for the instructional materials center.

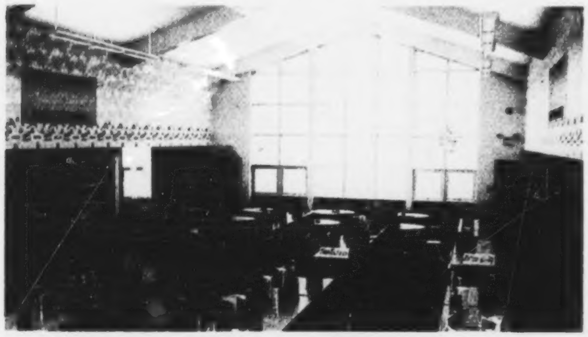
Early in the design process, the building committee gave priority to establishing a special sense of place for the children and for the community in the instructional materials center. To meet that goal, the designers turned the major lines of the resource center 45 degrees from the existing buildings and raised the roof to provide interior clerestory day lighting and a full-height window wall facing the trees and playground.

The interior of the instructional materials center has 17-foot-high cathedral ceilings, indirect lighting, and ample day lighting. The interior separation wall of the center is clear fire-rated glass, allowing passersby to view the interior. The instructional materials center houses a collection of 12,000 books and a state-of-the-art computer learning area. It is adjacent to a computer classroom for shared learning experience.

An enclosed reading area with a cozy reading circle, recessed into the ground, was designed to provide seating for storytelling and videos. The stacks, circulation desk, librarian's office, and staff resource room offer attractive and well-organized equipment and furnishings.

Adjoining the instructional materials center are four large and airy classrooms for kindergarten, science, and computer classes. The lobby in front of the instructional materials center is the "street" between the primary school building and elementary school buildings. A wheelchair lift was included in the design to provide access at the change in levels.

During the construction of the addition, renovations to the existing school buildings were also performed, providing new flooring, lighting, finishes, and mechanical and electrical changes. When the students and staff returned to the school in September 1993, a whole new learning environment awaited them. ■



Resource center

RENOVATIONS/
ADDITIONS

RICHLAND ELEMENTARY SCHOOL
GIBSONIA, PENNSYLVANIA

The Eckles Company Architects

The Eckles Company Architects
301 North Mercer Street
New Castle, PA 16101
Robert G. Naugle, AIA
(412) 652-5507

Design team
Robert G. Naugle, AIA
Principal-in-Charge
Daniel C. Engen, AIA
Project Architect
Janice M. Engen
Interior Designer

Client
Pine-Richland School District
(412) 443-7276

Grade span
K-5

Current building capacity
775

Current building area
103,000 square feet

Building area before addition/renovation
103,000 square feet

Total project costs
$5.5 million

Cost per square foot
$53

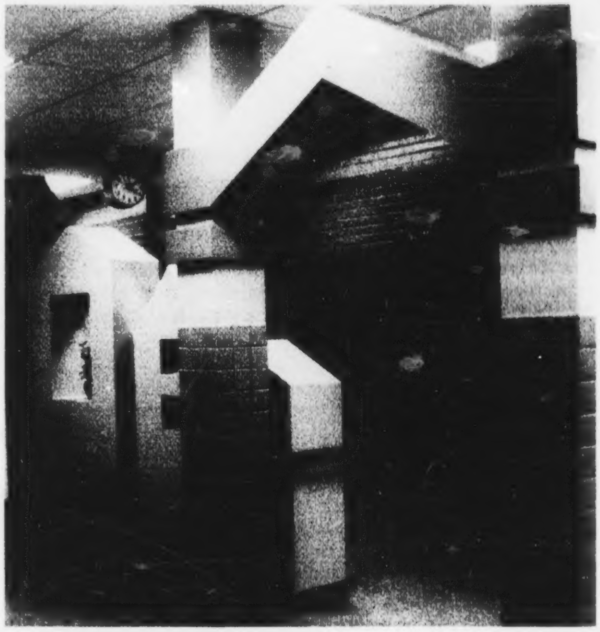
Space per student
140 square feet

Cost per student
$7,600

Completion date
August 1994

In an effort to accommodate student population growth, the old Richland High School was converted into an elementary school housing 700 students in grades K-5.

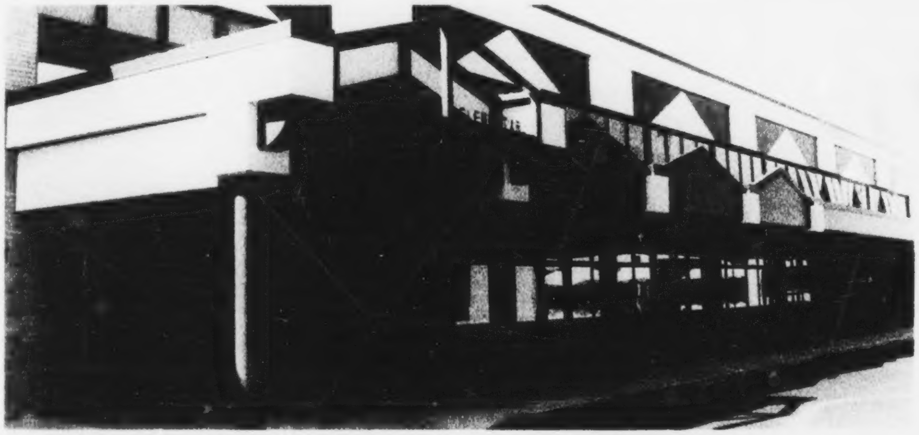
The ultimate design challenge was to alter the community's image of the old building so that when the new facility reopened, it would be perceived as the new Richland Elementary School and not "the old high School." To accomplish this goal, the scope of renovations and alterations included all interior spaces, furnishings, and exterior surfaces. The facility houses a renovated auditorium/stage, gymnasium, library, computer center, and large-group assembly room. The existing classrooms, corridors, and administration offices were completely demolished and rebuilt.



Second-grade entrance

To eliminate the sterile, institutional nature of the existing building and the long-corridor tunnel effect, designers created a rhythm of movement by incorporating bulkheads, pilasters, and indirect lighting throughout the corridors. Slow curves and a rich collage of colors, consisting of various shades of blue, green, and purple, were used to create an inviting environment for elementary age children.

To help inspire the young students to participate in the transformation of the school, designers created an art gallery for student work, located bulletin boards throughout, added aquariums in the main lobby, and hung box kites in the stairwells that are "flown" by large cut-out figures painted by the elementary students. ■



Main entrance

BURR RIDGE MIDDLE SCHOOL
BURR RIDGE, ILLINOIS

Wight & Company

Wight & Company
814 Ogden Avenue
Downers Grove, Illinois
60515

Robert C. Finch
(708) 969-7000

Design team
Robert C. Finch
Vice President
Principal-in-Charge

Clifford W. Bedar
Vice President
Project Manager

Kevin L. Havens
Vice President
Designer

Al Zakariya
Project Architect

Client
Community Consolidated
School District 180
(708) 325-5454

Grade span
6-8

Current building capacity
400

Current building area
57,500 square feet

Building area before addition/renovation
32,500 square feet

Total project costs
$4.3 million

Cost per square foot
$75

Space per student
144 square feet

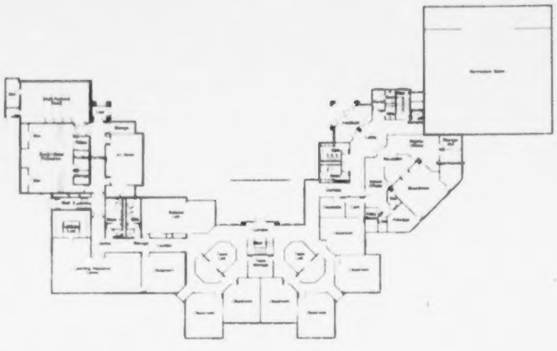
Cost per student
$10,750

Completion date
August 1994

The most important element for the design of the Burr Ridge Middle School is rooted in the progressive educational philosophy of the school district. As the existing middle school had a traditional subject-based, double-loaded corridor organization, the challenge was to create a new environment to foster team-based learning. This was achieved with four grade clusters, each with four classrooms organized around central team resource centers.

These team "labs" provide students with networked PCs and other resources and provide common office/planning space for teachers in each cluster to reinforce team communication. Further enhancing this physical communication, glass partitions allow teams and individual students to work independently in the team lab, yet still allow visual supervision from the classrooms.

The Burr Ridge Middle School presented many challenges, both in design and construction. The steep terrain of the site positions the addition's footprint diagonally along the crest of a 40-foot slope. The addition further meanders around and through a forest of mature oak trees. The exterior facades are sheathed in a subtle grid-like pattern of 4- and 8-inch cedar clapboards and shingles over wood furring and insulation. This exterior material, in conjunction with the two brick entrance towers, creates a rich composition in scale with the surrounding neighborhood. ■



Upper-level floor plan

Classroom

Entrance

LOGAN HIGH SCHOOL
LOGAN, UTAH
Architectural Design West, Inc.

Architectural Design West, Inc.
98 West Center Street
Logan, UT 84321
Scott Theobald, AIA
(801) 752-7031

Design team
Anthony A. Wegener
Planner
Scott Theobald
Project Architect

Client
Logan City School District
(801) 755-2300

Grade span
9-12

Current building capacity
1,800

Current building area
202,000 square feet

Building area before addition/renovation
123,000 square feet

Total project costs
$6.1 million

Cost per square foot
$56 new/$32 remodeled

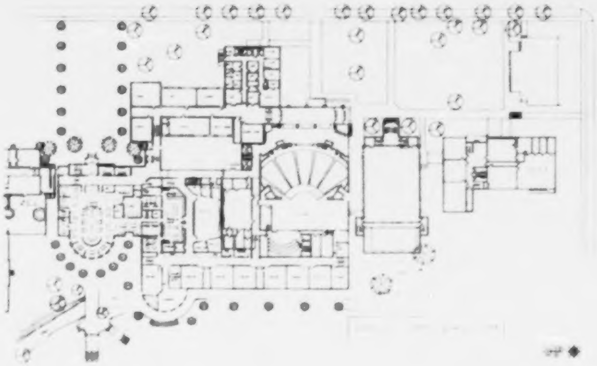
Completion date
August 1993

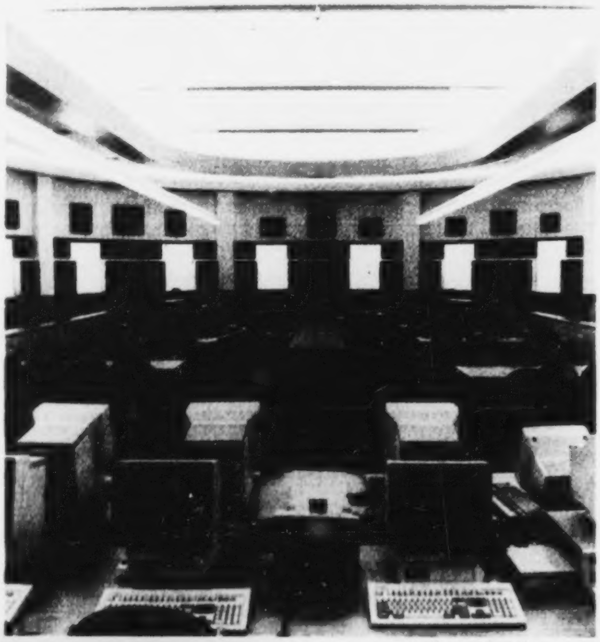
This project achieved a number of objectives:

- Expand a 1,200-student high school to serve 1,800 students.
- Unite all five existing and new floor levels to meet ADA requirements, with a single elevator.
- Restore some of the original architectural character to the 110-year-old campus.
- Incorporate the latest instructional technology.

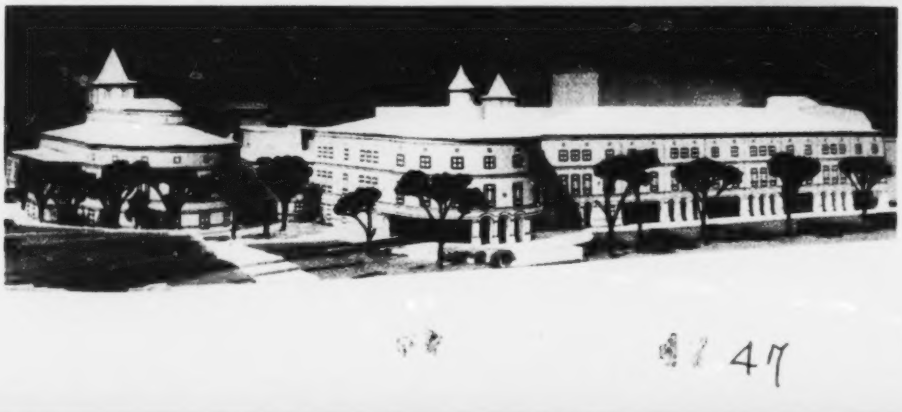
This addition includes 22 new classrooms and an 18,000-square-foot library/media/technology center. All classrooms are tied to the media center with an integrated media-retrieval system, allowing teachers independent access to the information world. According to Principal Rulon Olsen, the powerful multimedia learning environment "has taken Logan High School one step closer to being the school of the future." The addition also includes the finest orchestra room in Utah. It was built within an existing, underutilized gymnasium. The high-volume space has been transformed into an acoustic gem.

The new addition is built over an existing irrigation canal. The water in the canal maintains a relatively constant 50-degree temperature during summer. A pump now diverts canal water through cooling coils, providing almost free summer cooling to the entire building. ■


Second floor plan


On-line card catalogue area

Model



NORTHERN POTTER JUNIOR/SENIOR HIGH SCHOOL ULYSSES, PENNSYLVANIA

L. Robert Kimball & Associates

L. Robert Kimball & Associates
120 N. Church Street
West Chester, PA 19380
A. Steven Krug, AIA, PE
(610) 692-2232

Design team
Mark Hitchcock, AIA
Project Manager
Ed Kirkbride, ARA
Project Architect
Mary Jo Hopton, AIA
Associate
Interior Design

Client
Northern Potter School District
(814) 848-7506

Grade span
Junior/Senior High

Current building area
81,400 square feet

Building area before addition/renovation
64,200 square feet

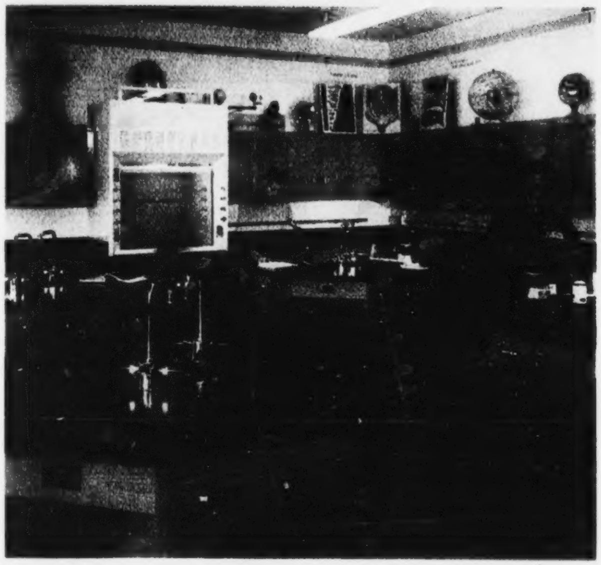
Total project costs
$3.4 million

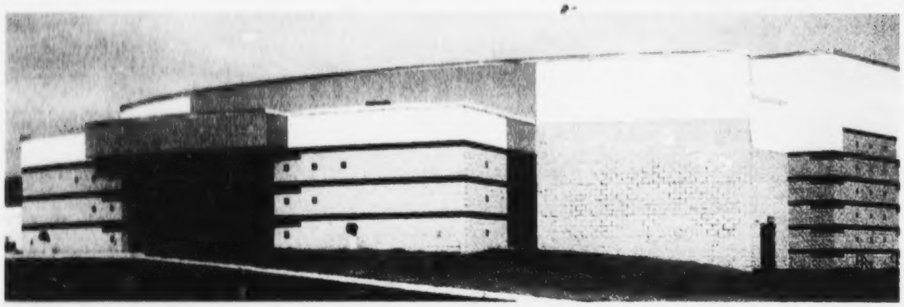
Additions and renovations to the junior/senior high school included an auditorium facility to serve the elementary school, junior/senior high school, and the community. The classrooms were updated to meet current educational and technical requirements. The new 600-seat auditorium attached to the junior/senior high school was sited to allow close pedestrian access to the school district's elementary school. A new 165-car parking lot situated between the two schools provides additional parking for special events occurring at the auditorium.

The auditorium facility includes a music suite comprising a 1,125-square-foot choral/band classroom, adjacent offices, storage rooms, and a drama room with provisions for dressing rooms in the future. Expansion also included a new technical education classroom and maintenance shop.

Alterations to the existing junior/senior high school incorporated energy-conservation design, including replacement of exterior doors and windows, reduction of the exterior window area by 60 percent through an exterior finish infill system, and replacement of two gas-fired boilers. The existing stage and part of the adjoining cafeteria were converted into a new larger library for the school. Additional upgrading included installation of a new sound communication and multimedia system utilizing state-of-the-art technology. ■

Auditorium


Science laboratory


Exterior

TECHNOLOGY CENTER
BYRON, ILLINOIS
The Durrant Group Inc.

The Durrant Group Inc.
942 CyCare Plaza
Dubuque, IA 52001
(319) 583-9131

Design team
Kevin J. Eipperle, AIA
Design Architect
Gerald L. Guy, PE
Project Director
Charles R. Marsden, PE
Engineering Project Manager
William Miller
Structural Designer
Mark Stifter, PE
Electrical Engineer
James S. O'Meara
Plumbing Design
David Easter
Dennis Kephart
HVAC Design

Client
Byron Community Unit
School District #226
Byron, Illinois
William Young
Superintendent
(815) 234-5491

Grade span
9-12

Current building capacity
1,700

Current building area
173,340 square feet

Building area before addition/renovation
137,340 square feet

Total project costs
$3.6 million

Cost per square foot
$99

Space per student
393 square feet

Cost per student
$8,115

Completion date
August 1994

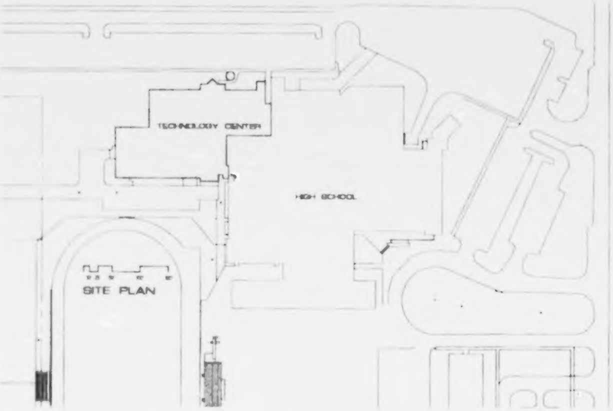
The technology center addition replaces the outdated vocational curriculum. Its main objective is to provide opportunities for all students to learn skills and attitudes that will serve them in the high-tech world.

The technology center is designed by curriculum. The design allows maximum flexibility of use, both today and in the future. It will be shared with the community through business partnerships and adult education.

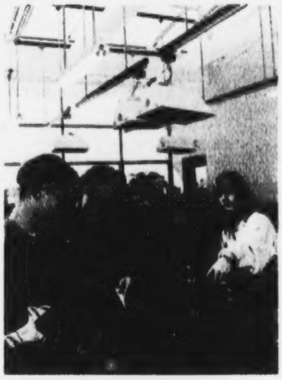
Programs offered at the technology center include auto technology/electronics using current engines and testing equipment; urban agriculture with a state-of-the-art greenhouse; aquaculture science and fish farming; light construction trades; business education, including accounting and intermediate document processing; and computer education training.

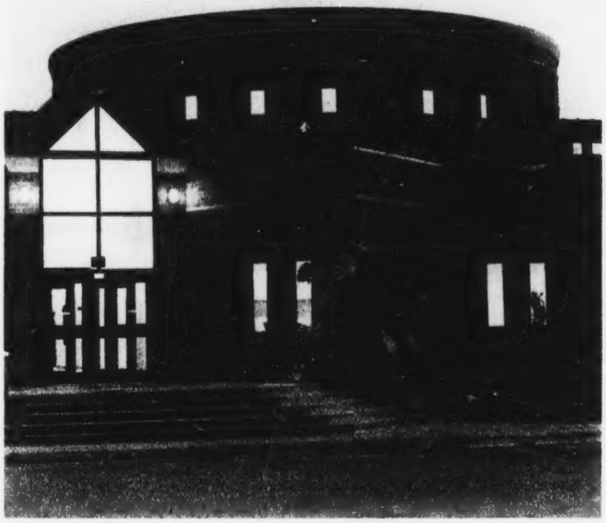
The focus of the center is housed in the rotunda. Several computer-facilitated short courses are offered to give students opportunities to gain understanding of various technologies. Some courses include advanced laser technology, computer animation, CAD, satellite communication, CNC production, applied pneumatics, biotechnology, flight, robotics, engineering structures, and TV broadcasting and video production.

The building was constructed using brick, load-bearing concrete masonry, steel frame, and metal roofs. The engineering systems utilize energy-efficient gas-fired boilers, air-cooled chillers, sensor-driven climate control, and high velocity particulate-segregated exhaust systems. An in-floor cabling distribution system provides flexibility to accommodate curriculum changes. ■



Site plan


Urban agriculture greenhouse


Entrance

PROJECTS IN PROGRESS

Integrus Architecture
1600 The Exchange
Building
Seattle, WA 98104-1503
Kirklund Wise, AIA
(206) 628-3137

Design team
Pierce McVey, AIA
Project Architect/Designer
Kirklund S. Wise, AIA
Principal-in-Charge
Michael Hoffner
Michael Knowles
Robert Luck
Lisa Port
Design Team

Client
Tacoma School District #10
Manuel Pereria, AIA
Director of Planning &
Construction
(206) 596-1313

Programmed building area
58,000

Building cost
$6.4 million

Cost per square foot
$110

Space per student
105 square feet

Cost per student
$11,636

FRANKLIN ELEMENTARY TACOMA, WASHINGTON

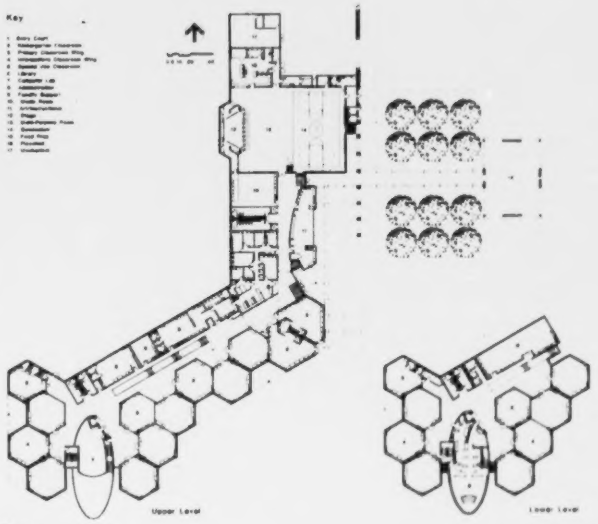
Integrus Architecture

This new elementary school is based on a design concept of bridging the man-made environment and the natural lay of the land with an integrated multi-disciplinary pathway of learning. Strengthening the opportunities for joint-use in public facilities, the design puts an accent on the nature of life—the sun. Programmed for 550 students and 50 staff, spaces include 22 classrooms, three program rooms, support and administration. Special instructional spaces consist of a library, computer room, and music room.

This school is designed to be an integral part of the abutting 18 acre park, community, and environment. Features such as footpaths, play areas, and parking are located to reinforce community access and use. Large- and small-scale play areas are located for easy access and supervision.

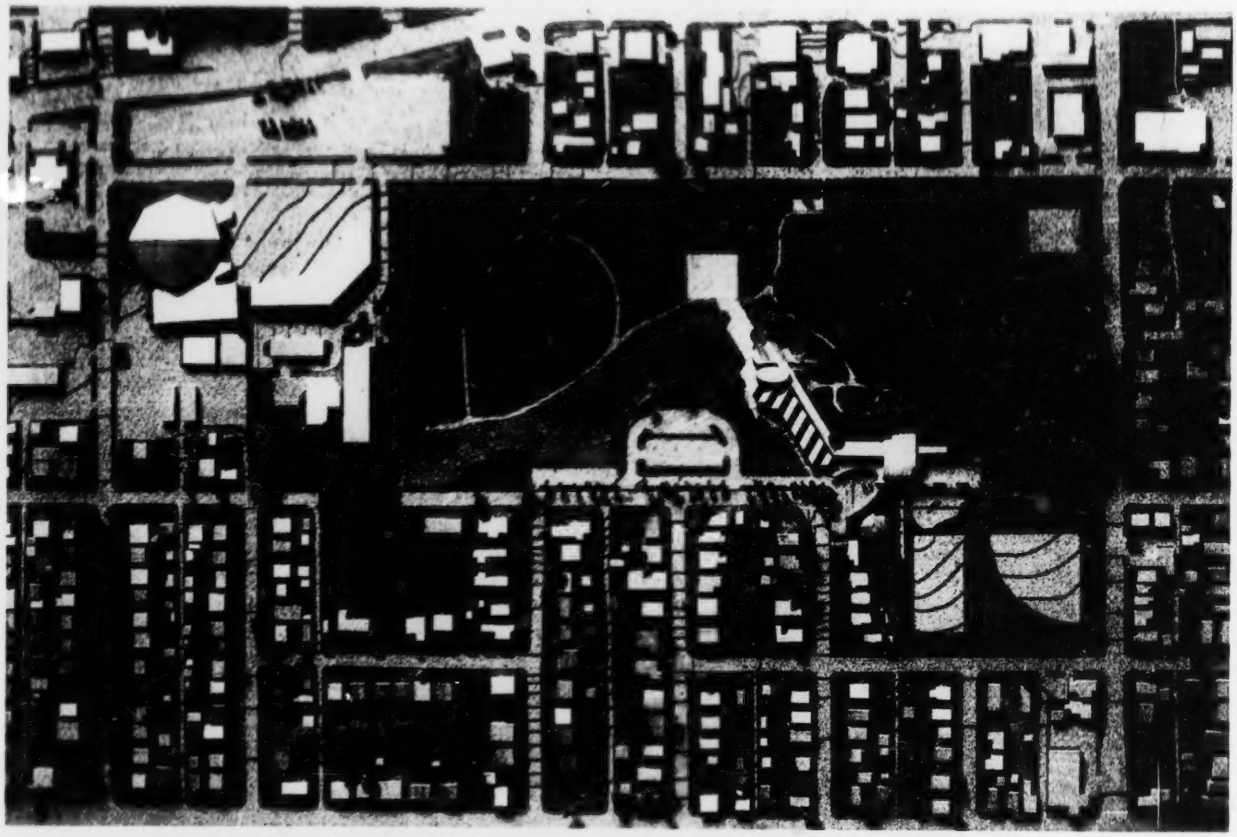
Two uniquely defined angled wings are joined by an entry court that opens to the adjacent residential area. Large multiple-use spaces, programmed to be shared by the community, are accessed directly from this entry. These spaces are buried into the hillside to conserve energy and to maintain a low profile. The administrative areas support or link the two wings. As a continuation of the site footpaths, a corridor path is designed with "flex" spaces that allow the corridor to be used as an informal, interpretive gathering area.

Sun-filled, hexagonal



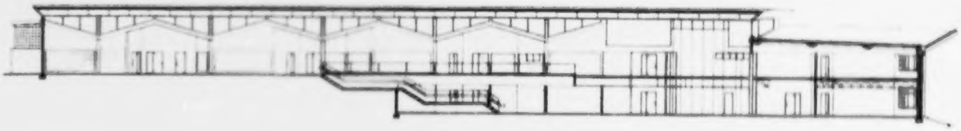
Plan

Model of exterior

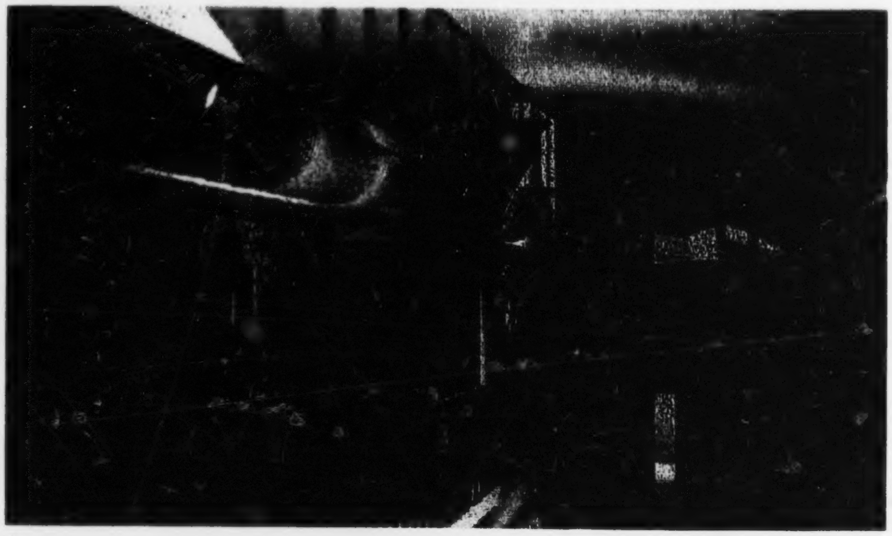


Site plan

classrooms are clustered along the corridor path. As the hill drops away, additional classrooms drop into the site to form two floor levels. The corridor path terminates at a library designed as a window to the site. ■



Cross section



Interior

51

PROJECTS IN PROGRESS

FRANCIS A. HIGGINS ELEMENTARY SCHOOL CHESTERFIELD TOWNSHIP, MICHIGAN

Coquillard/Dundon/Peterson and Argenta

Coquillard/Dundon/ Peterson and Argenta
3000 Town Center
Suite 1515
Southfield, MI 48075

John P. Argenta, RA
(810) 354-2441

Design team

John P. Argenta, RA
Principal-in-Charge

Mark A. Lynden
Project Designer

Brian J. Smilnak, RA
Project Director

Andrew C. Sowinski, AIA
Project Coordinator

Client

L'Anse Creuse Public Schools
(810) 465-1941

Grade span

K-5

Current building capacity

700

Current building area

66,000 square feet

Total project costs

$6 million

Cost per square foot

$91

Space per student

94 square feet

Cost per student

$8,571

Completion date

June 1995

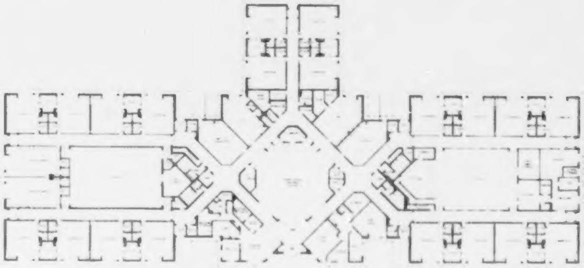
The Francis A. Higgins Elementary School will open in the fall of 1995 with 700 students. The building construction consists of concrete block and brick veneer with a pitched shingled roof. It is air conditioned.

The 66,000-square-foot school will contain 20 classrooms for grades 1-5; two kindergarten classrooms; and classrooms for art, music, computers, and special education.

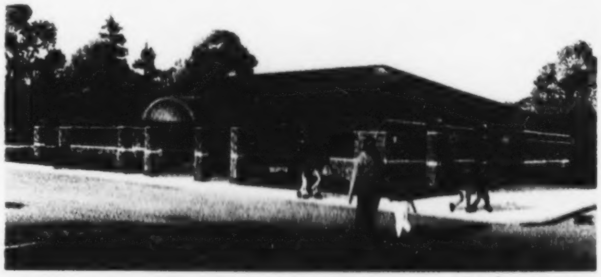
To reduce corridor length, the classrooms wrap around the gymnasium and cafeteria/platform spaces. These fall on either side of the instructional materials center that immediately greet visitors as they enter the lobby.

Staff support, public toilet, and kitchen facilities are present for after-hours community functions, while the classroom corridors can be secured from public access.

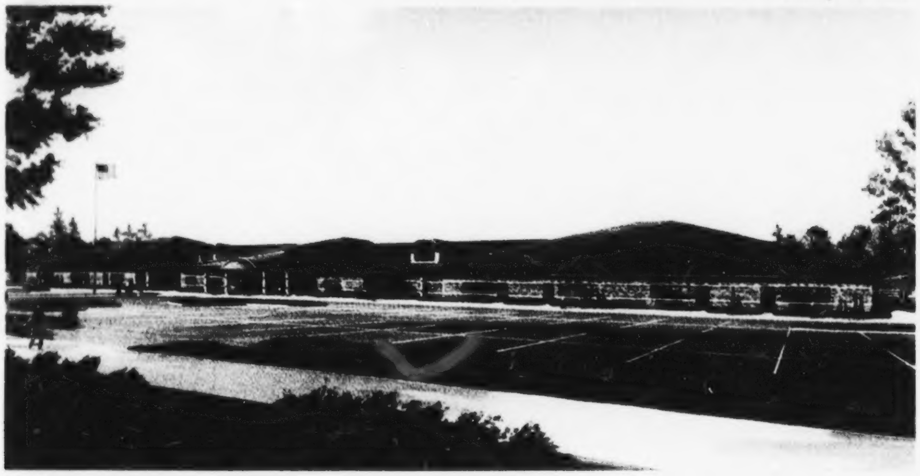
The 17-acre site includes a district-operated child-care facility and soccer and baseball fields for school and community use. The approach to the school consists of two separate drives, one for visitors and one for staff and buses, with a connecting link to access the child care facility. Total separation of bus and car traffic at the school was achieved by way of a bus loop that circles behind the school and a bus drop-off lane at the child-care facility. ■



Composite floor plan



Development center



Exterior

PROJECTS IN PROGRESS

WASHINGTON TOWNSHIP TWIN 7/8 MIDDLE SCHOOL SEWELL, NEW JERSEY

L. Robert Kimball & Associates

L. Robert Kimball & Associates
120 N. Church Street
West Chester, PA 19380
A. Stevens Krug, AIA, PE
(610) 692-2232

Design team
David Schrader, AIA
Designer
Gavin Speirs, AIA
Project Architect

Client
Washington Township
School District
(609) 589-6644

Grade span
7-8

Proposed building capacity
1,700–2,000

Current building area
224,000 square feet

Total project costs
$30 million

Cost per square foot
$123

Space per student
132 square feet

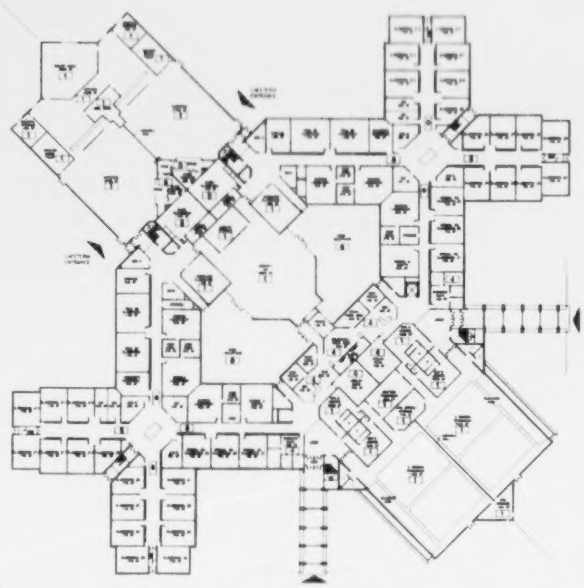
Cost per student
$17,650

Completion Date
T. B. D.

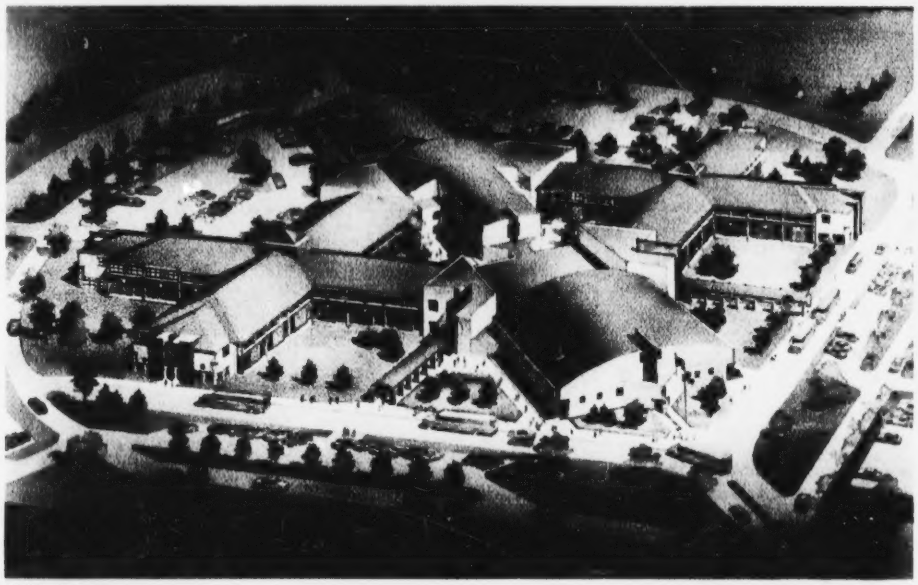
The Twin 7/8 Middle School was designed as two 850-student schools with a shared core facility initially housing 1,700 students. The shared core is 12 percent of the building area and contains the IMC, food preparation, mechanical, and service expansion to 2,000 students. Each 850-student middle school was designed as a self-contained facility with its own identity and administration. Each school is 98,500 square feet with 27,000 square feet of shared area for a total school size of 224,000 square feet.

The facility includes an interdisciplinary, technology enhancing, student-learning capability to meet the goals of the 21st century. The intent is to install a flexible computer network and total building telecommunications, later to be linked throughout the school district.

The pitched roof of the exterior of the building reflects the residential character of the suburban neighborhood surrounding the site. The facade was designed with comfortable earth-tone colors to visually reduce the exterior scale of the building. ■



Plan



Model of exterior

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BERKELEY HIGH SCHOOL, MASTER PLAN AND BUILDINGS G&H BERKELEY, CALIFORNIA

VBN Architects

VBN Architects
Associated Architects:
Wolff/Lang/Christopher
Architects, Inc.
501 14th Street, Suite 300
Oakland, CA 94612

Lee Karney, AIA
(510) 763-1313

Design team
Lee Karney
Principal-in-Charge

Dan Odasz
Project Manager

Kevin McQuarrie
Steve Stark
Designers

Client
Berkeley Unified School
District
(510) 644-6180

Grade span
9-12

Current building capacity
1,600

Current building area
126,050 square feet

Building area before addition/renovation
126,050 square feet

Total project costs
$14.8 million

Cost per square foot
$117

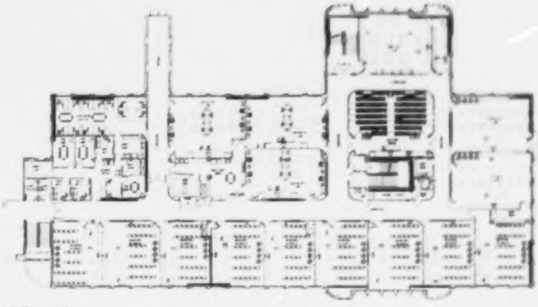
Space per student
79 square feet

Cost per student
$9,228

Completion date
Building G: August 1995
Building H: August 1996

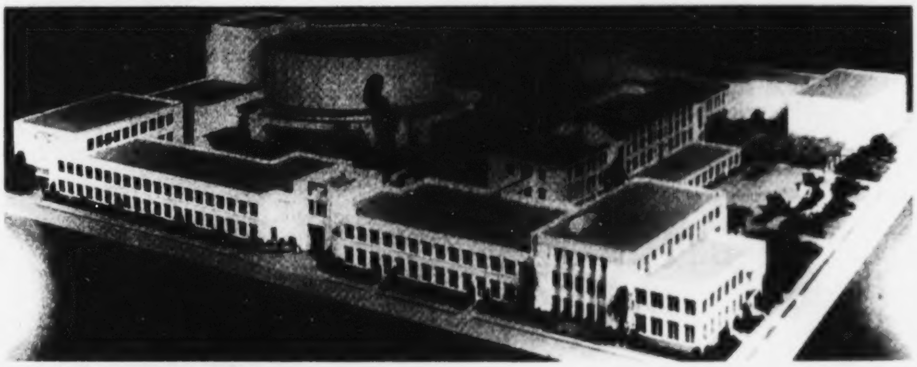
Berkeley High School is a late-1930s Art Deco academic complex, an unofficial but well-known city landmark. The school is renowned both for its high academic standards and vocational education. It serves a diverse and sophisticated student population.

Pursuant to developing the master plan, it was determined that Buildings G and H should be reconstructed. The buildings are receiving seismic upgrades, modifications for handicapped accessibility, new environmental systems, asbestos abatement, and all new interiors. Seismic strengthening is being accomplished without affecting the exterior. Original window frames, bas-reliefs, exterior decorative light fixtures, and glass block are being restored. The bridge linking the buildings with the rest of the campus is being replaced with a replica, built to today's earthquake safety standards.


Second floor plan

Office-style word processing lab

Interiors provide a 21st century academic environment. Building G houses the science department; art studios; ceramics, graphics, and auto shops; drafting and CADD technology lab; special education resource center; and community media center. Building H houses computer labs, photo shops, academic classrooms, and culinary arts. A key feature of each classroom is the "learning wall," equipped with a large video monitor, VCR, CCTV, data outlets, clock, intercom, and master controls for all systems. The teacher's station is provided with a computer and master controls. ■


Model of exterior—original 1930s plan

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PROJECTS IN PROGRESS

HERSHEY HIGH SCHOOL
HERSHEY, PENNSYLVANIA

Foreman & Bashford Architects/Engineers

Foreman & Bashford Architects/Engineers
P.O. Box 189
Zelienople, PA 16063
C. Roger McIntyre
(412) 452-9690

Design team
C. Roger McIntyre
Project Architect
Clifford G. Foreman, AIA
Project Manager
Robert Dorsch
Mechanical Engineer
Steve Cotherman
Electrical Engineer
David Foreman
Structural Engineer

Client
Derry Township School District
(717) 534-2501

Grade span
9-12

Current building capacity
1,164

Current building area
204,722 square feet

Total project costs
$19.4 million

Cost per square foot
$95

Space per student
175 square feet

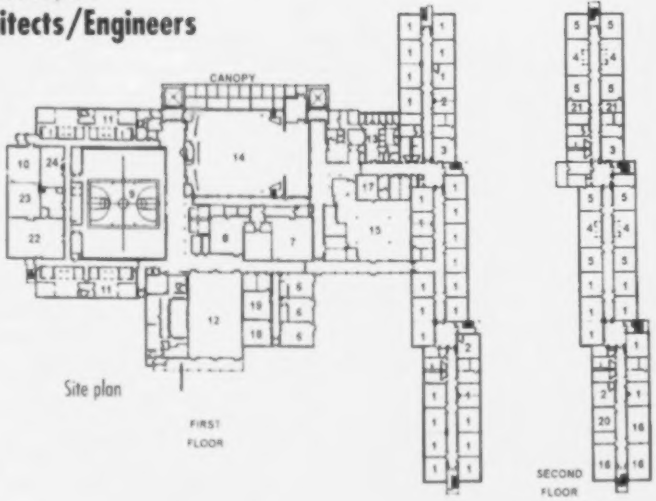
Cost per student
$16,649

Completion date
March 1996

Faced with a growing enrollment and antiquated facilities, the Derry Township School District embarked upon a restructuring of the school district's facilities. The restructuring included the construction of a new high school for grades 9-12 and the conversion of the existing high school into a middle school for grades 6-8. It was essential that the new facility meet the district's current educational requirements in addition to being ready to accommodate future needs.

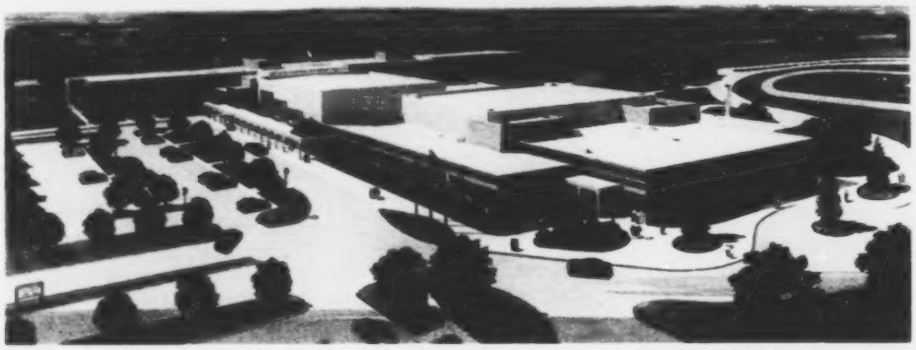
Foreman & Bashford responded to the district's needs by designing a state-of-the-art 204,722-square-foot educational facility. The new high school design incorporates the latest in computer technology and provides for future technologies.

All areas of the facility have access to voice, data, and video cabling. The fiber optics provided respond to the district's current and future applications. Each classroom is configured for a 28-student computer network with a minimum of 49 data outlets. Cabling, mounting brackets, and outlets—to support a TV monitor, laser disk, VCR, and other multimedia equipment—are provided in each room, along with a satellite antenna system. The fiber-optic cabling extends to the middle school for voice, video, and computer network ties. ■



Site plan

3-D computer model of art room



Exterior rendering

LYNWOOD HIGH SCHOOL
LYNWOOD, CALIFORNIA

Ruhnau ° Ruhnau Associates

Ruhnau ° Ruhnau Associates
3775 Tenth Street
Riverside, CA 92501
Herman Ruhnau, FAIA
(909) 684-4664

Design team
David Ruhnau, AIA
Principal-in-Charge
Roger Clarke
Principal/Project Architect
Joseph Calderon
Principal/Construction Documents
Kathy Davis
Interiors, Graphics

Client
Lynwood Unified School District
(310) 886-1602
Audrey Clarke
Superintendent

Grade span
9-12

Current building capacity
3,316

Current building area
316,167 square feet

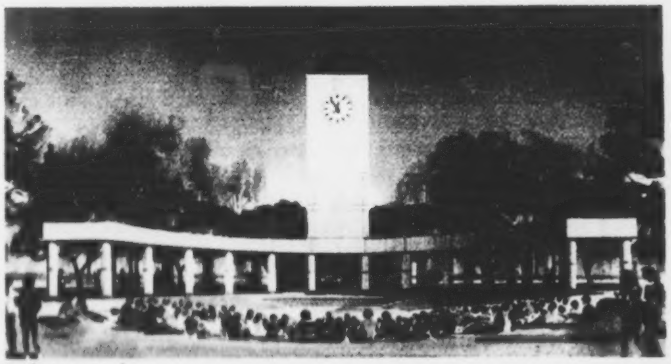
Total project costs
$50 million

Cost per square foot
$158

Space per student
95 square feet

Cost per student
$15,079

Completion date
1996-97



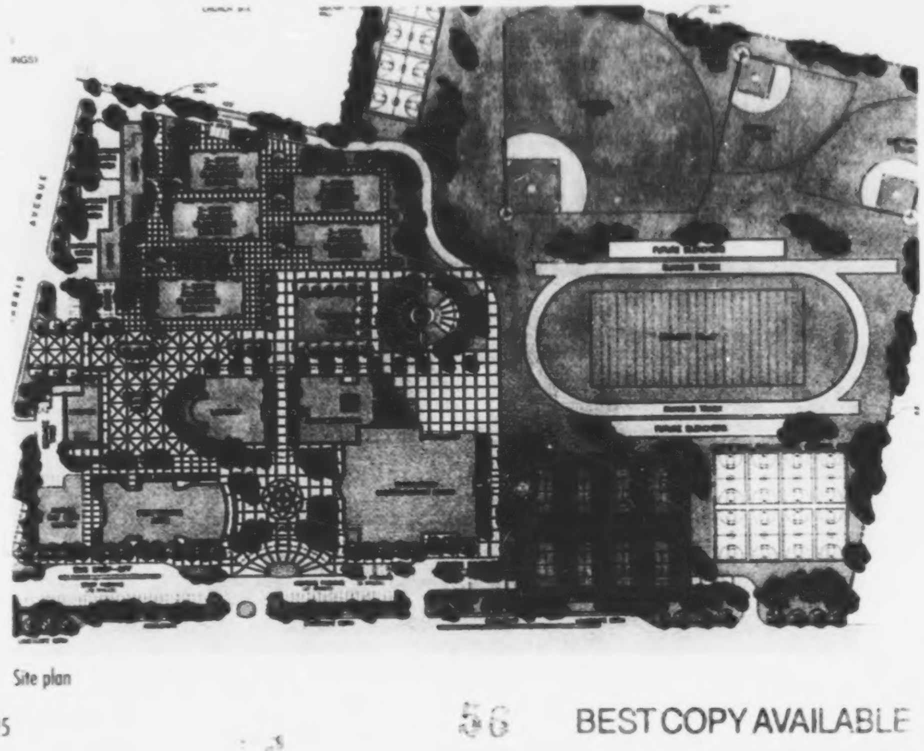
Student courtyard

The Lynwood Unified School District's objective was to provide a comprehensive high school to serve a diversity of students. The school facility was to provide not only for the students' education but also for joint community use. This included the involvement of community members and organizations.

The school district is located in a highly urbanized area of extreme population density. The only available site, 32 acres, necessitated careful land use and multiple-story buildings. The district, with its exploding growth, wanted an architectural design that would provide a strong statement to the community and the students it serves.

The architect's challenge was to accommodate 3,300 students in a comprehensive high school setting. Public areas for such uses as performing arts, library, and gymnasium—located to serve the community as well as the school—are a requirement. With the concentrated student population area served by the district, student vehicle parking was not a requirement. A subterranean vehicle parking structure is provided for staff. Special occasional surface parking will be provided by the alternative use of various athletic surfaces.

Design considerations include student body areas in an inner courtyard and an amphitheater, with a



Site plan

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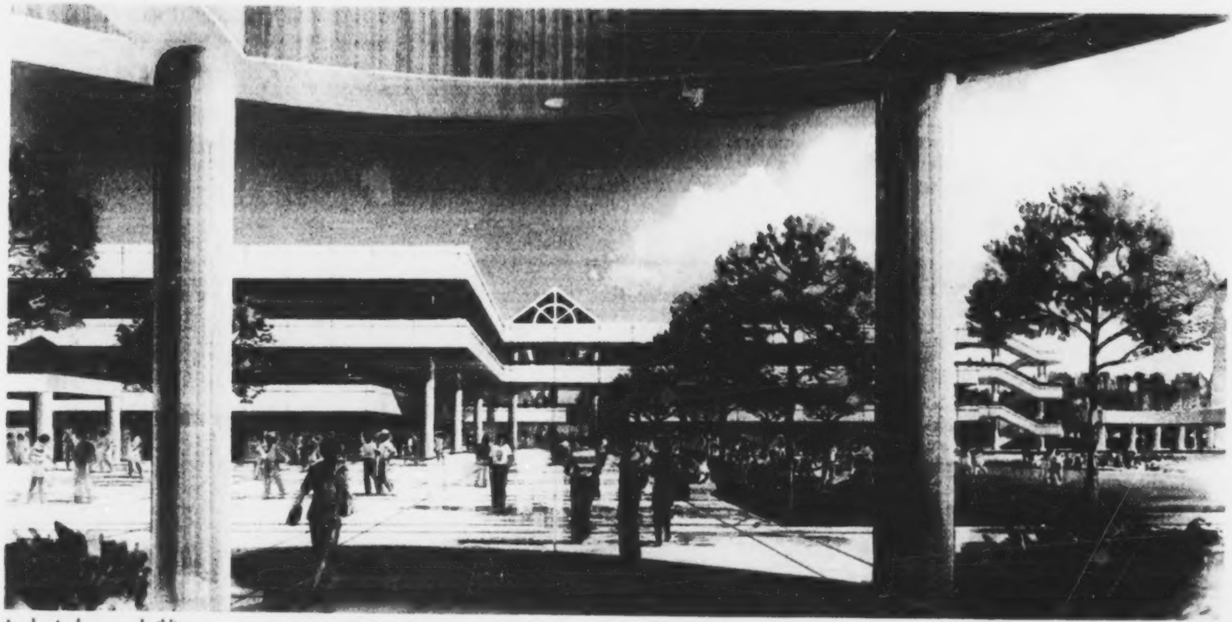


Academic classroom building

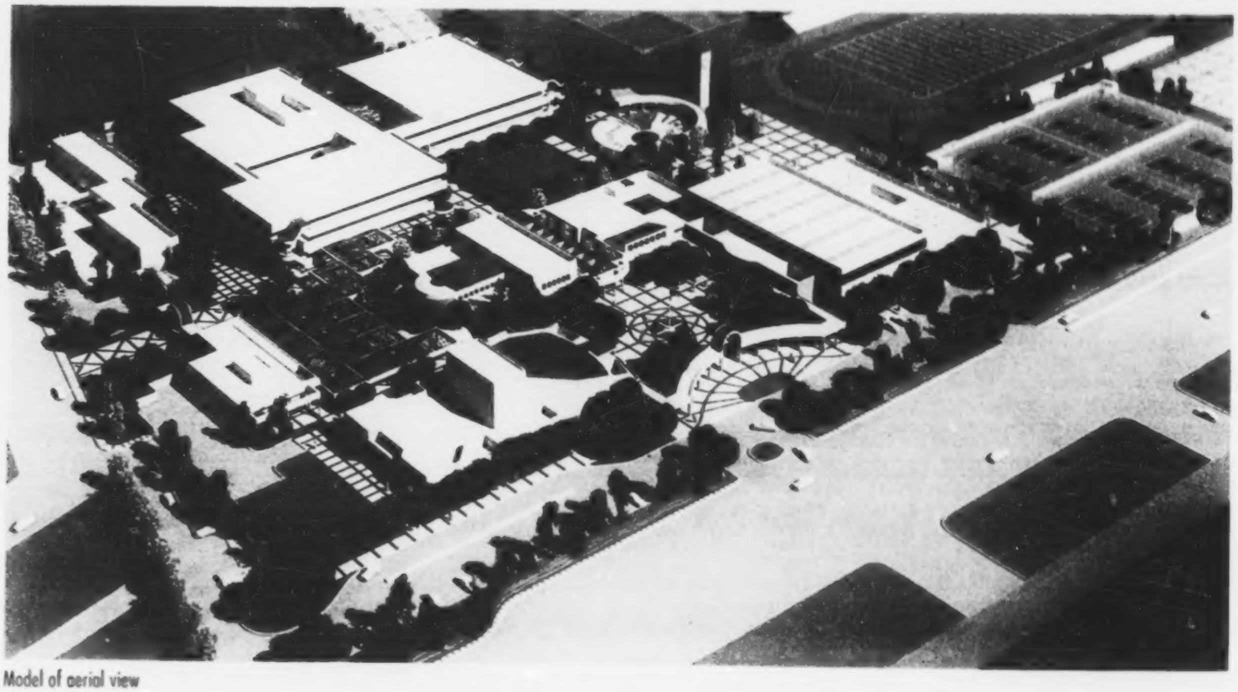
clock tower as a focal point, for large groups. Areas contributing to noise were isolated from nearby residential use. A complete systems network including educational technologies, television, and communications serves the entire campus. The buildings and their uses are protected by state-of-the-art fire and intrusion systems, including controlled closed-circuit television. Three-story academic buildings are served by covered walks and balconies providing weather protection for student circulation.

Energy conservation was an important consideration. The school integrates alternative and conventional state-of-the-art energy-savings measures.

In addition to the customary academic courses, the educational program accommodates sciences, business, homemaking, vocational, library, food service, performing arts, and indoor and outdoor sports in support of the school and community programs. Facilities for year-round education are provided.

Landscaping provides a spatial and dimensional quality to complement the architecture and to provide appropriate seasonal color, shades, and canopies resulting in a natural setting.

This project, now under construction, was funded under the State of California School Building Program. ■



Model of aerial view

PROJECTS IN PROGRESS

H.J. KAISER HIGH SCHOOL FONTANA, CALIFORNIA

HMC Group

HMC Group
3270 Inland Empire
Boulevard
Ontario, CA 91764-4854
Robert M. Jacob, AIA
(909) 989-9979

Design team
James L. Gilliam, AIA
Principal-in-Charge
Chris R. Taylor, AIA
Project Director
Robert M. Jacob, AIA
Project Architect
Paul Russell Lentz, AIA
Director of Design

Client
Fontana Unified School
District
(909) 357-5000

Grade span
9-12

Current building capacity
2,000

Current building area
187,750 square feet

Total project costs
$25 million

Cost per square foot
$135

Space per student
94 square feet

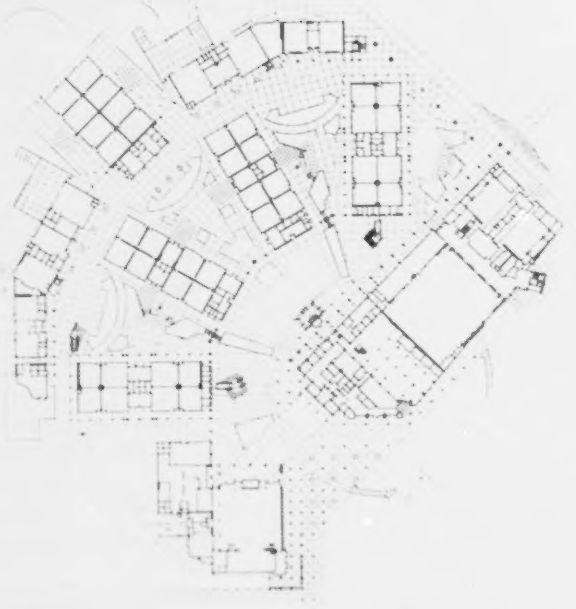
Cost per student
$12,650

Completion date
September 1997

Henry J. Kaiser High School epitomizes the new California high school. It is ordered, yet aware of its civic function. It is innovative and challenging in its geometry. It creates an intimate "human" place within the greater "communal" place where students can develop and explore their identity while immersed in an environment that is both stimulating and nurturing.

The school addresses the facility implications of curricular restructuring theory by emphasizing flexibility. The school will accommodate 2,000 students at an estimated cost of $25 million.

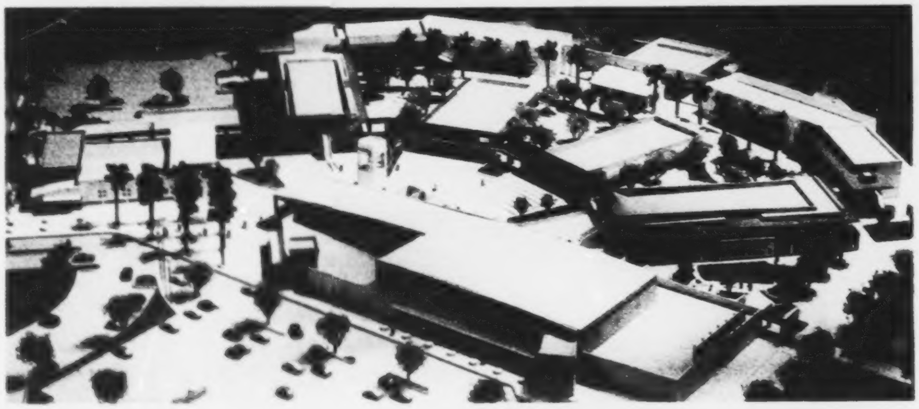
A pedestrian promenade creates an axis that terminates at a central tower. The campus is arranged radially around the tower as it anchors the entry plaza, a central courtyard, and provides a visual reference for the entire campus.



Site plan

The scale and massing of the community joint-use facility, which houses central administration, library/resource center, and athletic facilities, indicate the civic nature of the school. This imposing structure delineates the axis and acts as a barrier between the public and the remainder of the campus, allowing convenient access while providing a means of securing the campus during non-school hours.

Core curriculum clusters radiate away from the tower, forming the edge of the central open space and a series of smaller courtyards. Each cluster is provided with equal access to major campus facilities and houses general classrooms, science laboratories, satellite administration, counseling, and micro-computer lab. Arrayed behind the core curriculum clusters, specialized career preparation academies are composed of labs and classrooms that focus on a particular career discipline. ■



Exterior

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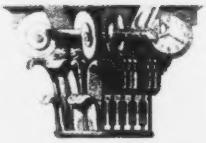

1995 LEARNING BY DESIGN VENDOR INDEX

The following vendors contributed to the projects included in this issue of *Learning By Design*.

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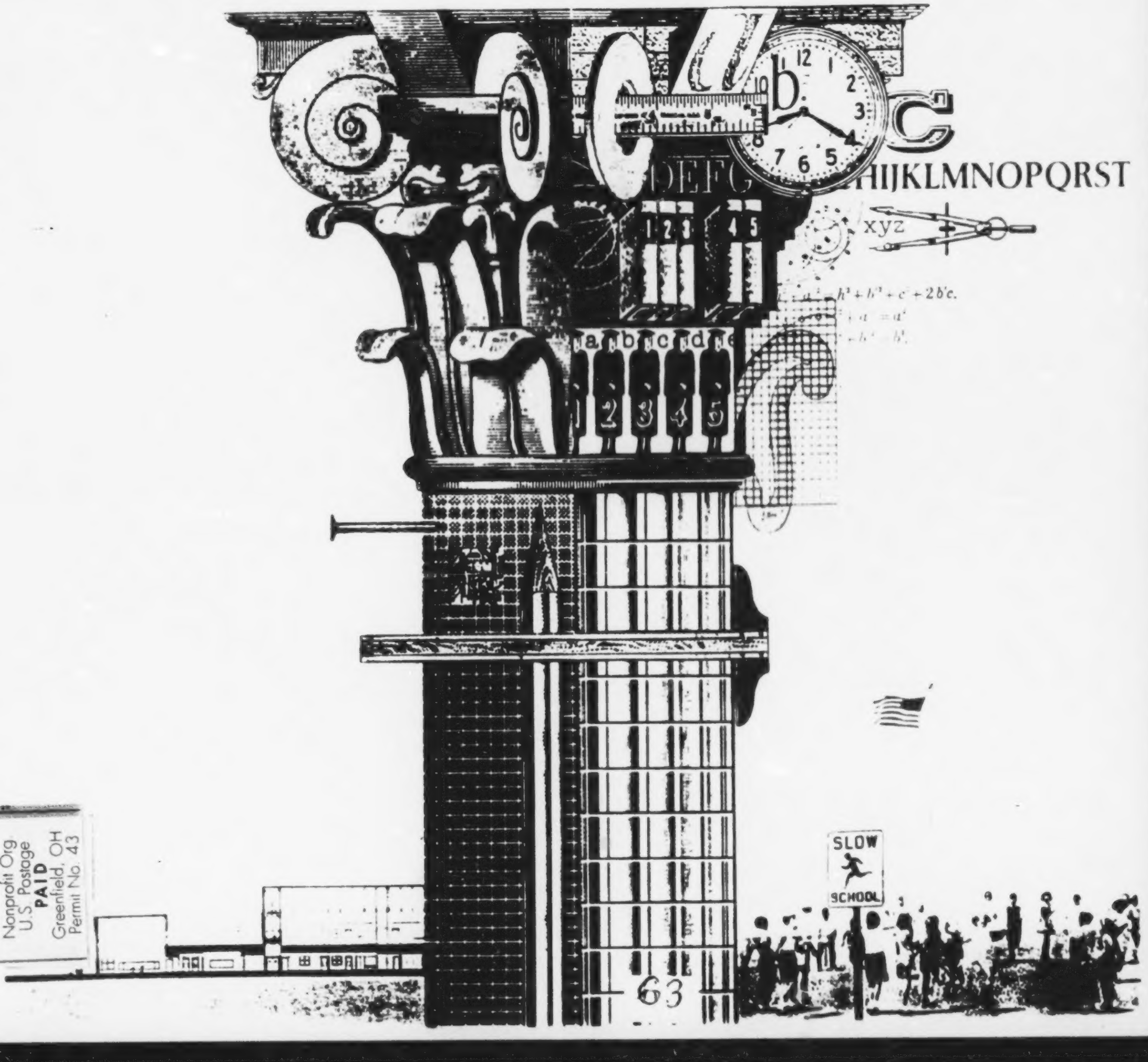
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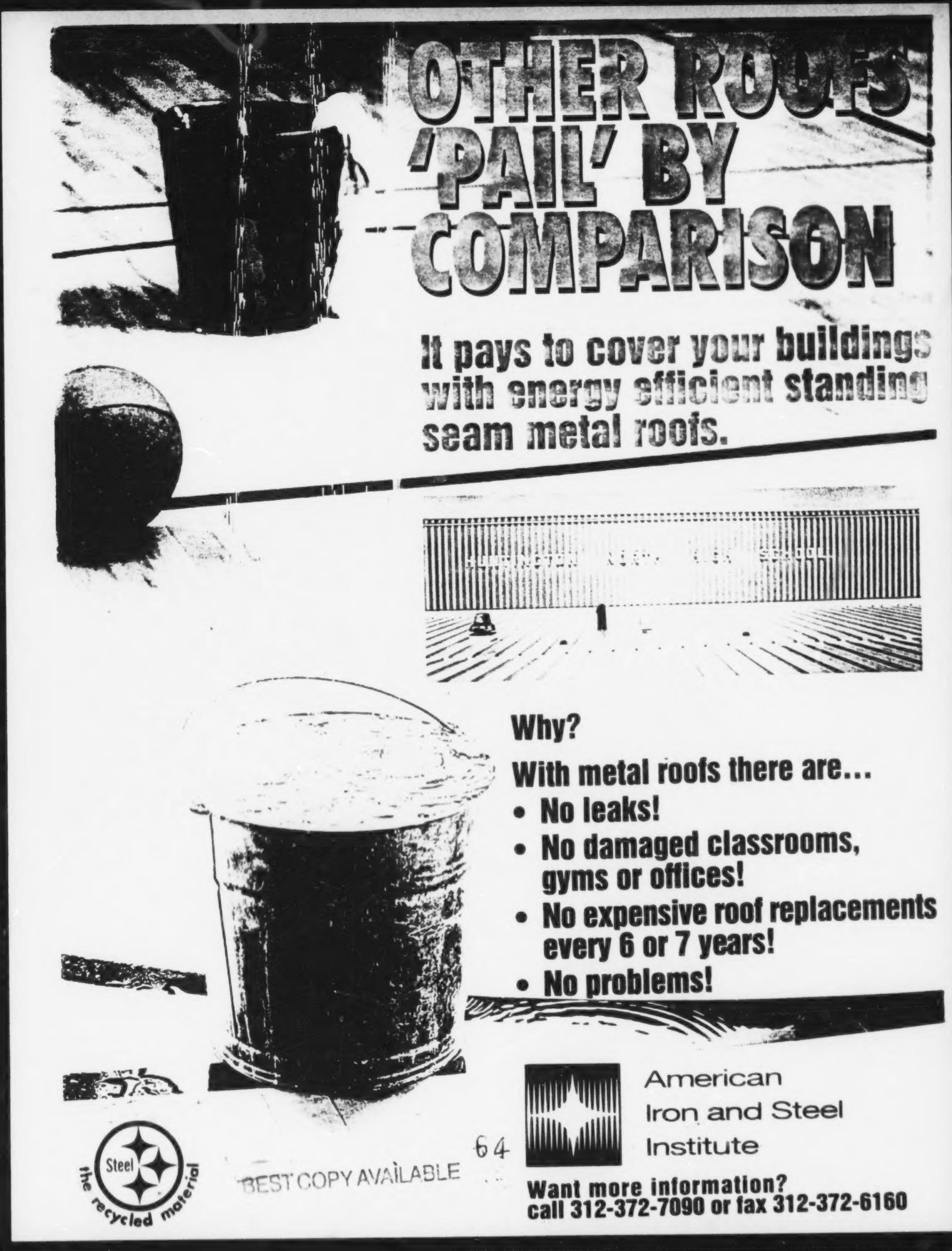

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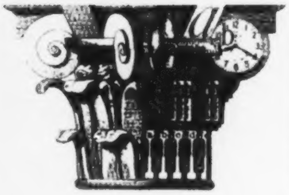

A SCHOOL LEADER'S GUIDE TO ARCHITECTURAL SERVICES MARCH 1996

INTRODUCTION

Gone are the days when public schools shut their doors after the last class had ended. Today's schools are serving multiple functions—as learning institutions and as centers of community activities. And nowhere is that trend more clearly illustrated than in this issue of *Learning By Design*.

In publishing this annual information resource, our goal is to gather together the most innovative and effective examples of school design, construction, and renovation.

The nearly 100 entries in this year's edition were selected by a panel of distinguished architects and facilities planners and represent the latest in educational design technology and functionality.

Take, for example, this year's Grand Prize winner—**Discovery Middle School**. Profiled on page 4, this Vancouver, Wash., facility features 1,200 computers, distance-learning capabilities, and assorted media rooms.

In addition, the nine entries singled out as Citation Winners garnered high praise from judges. They include:

- **Berkley School District**, Berkley, Mich., TMP Associates, Inc.
- **Central York Middle School**, York, Penn., L. Robert Kimball and Associates
- **Jordan and Jackson Elementary Schools**, Mansfield, Mass., HMFH Architects, Inc.
- **Lake Powell School**, Bullfrog, Utah, Valentiner Crane Architects
- **Charles A. Lindbergh Elementary School**, Little Falls, Minn., Short Elliott Hendrickson, Inc.
- **Puyallup High School**, Puyallup, Wash., Burr Lawrence Rising + Bates Architects
- **South Lawrence East School**, Lawrence, Mass., Earl R. Flansburgh + Associates, Inc.
- **Westside Middle School**, Omaha, Neb., Leo A. Daly
- **Wooster High School**, Wooster, Ohio, Lesko Associates, Inc.

As an added feature, *Learning By Design* also includes four "how-to" articles to help guide school leaders through everything from passing a bond referendum to organizing a design team.

Representatives of the firms featured in this expanded edition of *Learning By Design* are ready and eager to answer any questions you might have about their projects and services. They'll be happy to assist when your school district is ready to prepare for a major building program. ■

Tom Shannon Don E Blom

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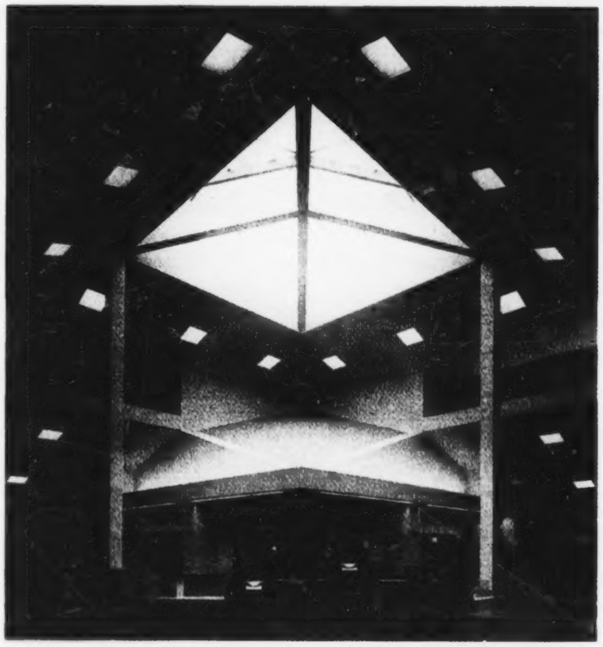
From the Reviewers:

SCHOOL DESIGNS FOR EVERYONE

Schools aren't just for children anymore. New features such as swimming pools, indoor running tracks open to the public, and state-of-the-art theaters designed for school and professional-level productions are transforming schools into a facility the whole community can use.

"The school is becoming more of a community center," notes Bill Day of KBD Planning Group, Inc., Bloomington, Ind., who points out that 70 percent of the adult population does not have school-aged children. "And why not? We're asking people to spend millions of dollars on these new facilities; now they can say there's something in it for them."



Integrating technology

Although the expanded role of the public school may be the newest trend influencing facility design, the integration of technology continues to have a profound impact. And, architects say, technology is becoming more finely woven into new-school designs.

"When indoor plumbing first emerged, what you had was an outhouse stuck onto the building, not restrooms as we think of them today," says Bob Moje, AIA, a principal with VMDO Architects, P.C., Charlottesville, Va. "We're now seeing the first real signs of technology being integrated . . . as an active fabric of the building, not just a computer stuck on a table."

Day adds that schools are beginning to catch up with the level of technology students experience in the "real world."

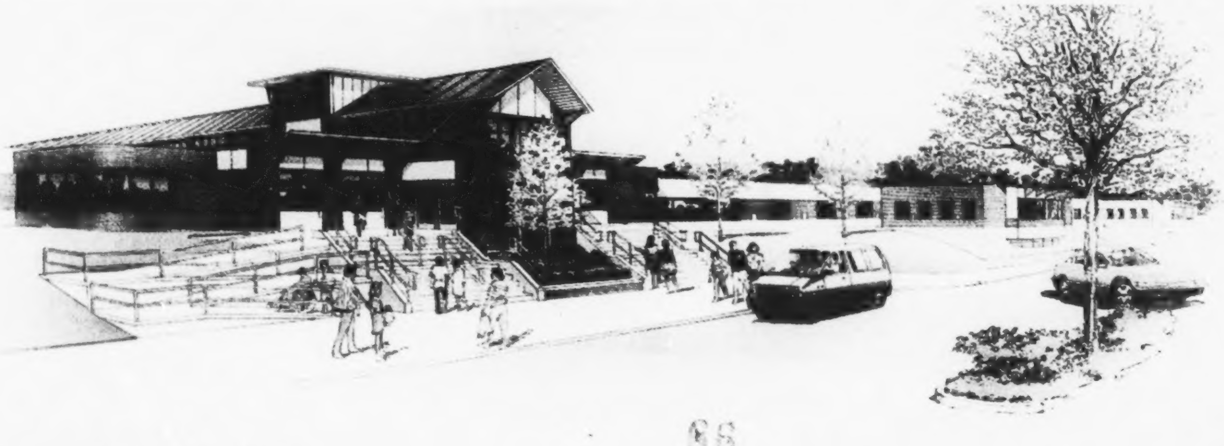
"At home, these kids have TVs, CDs, and the Internet," he points out, "then they go to school and talk chalk and books.

"That means, in designing schools, we've had to become less concerned with where the sink, cabinets, and chalkboards go," he continues, "and more concerned with where the printer, telephone, and data jack are installed."

Beyond wiring for hardware, the integration of technology is affecting the kinds and sizes of spaces within schools. Media and video production centers are typical features in today's new schools, and areas such as the wood shop are being reduced in size, as computer applications replace traditional hands-on tasks. Even libraries—though not likely to be "bookless" any time soon, as some predict—are being scaled down to accommodate the growing popularity of computer research and the increasing accessibility of the Internet

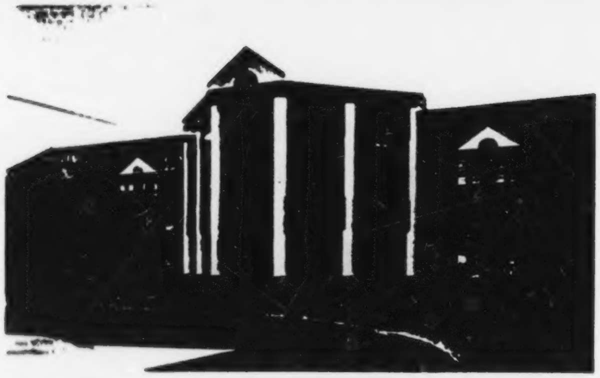
Small groups, lots of projects

"Classrooms are becoming more like studios," notes Day, "with different kinds of spaces for different kinds of activities. There's also more spaces where kids work in small groups—that's beginning to mirror the 'real' world, where we don't work in isolation,



KEY TRENDS IN NEW-SCHOOL DESIGN

- Creation of spaces for community use.
- Fuller integration of technology in all areas.
- Classrooms designed for small-group learning in a multidisciplinary environment.
- Creative, high-quality designs that complement educational programs.
- Office space for teachers.



but we seldom work in groups of 20 to 25 people."

"We're also seeing more variety in grade structure," adds Moje. "It used to be everything was broken into K-5, 7-8, and 9-12. But now we're breaking classes into teams—or 'houses'—that more closely relate to the educational process. We're also seeing schools with different themes, such as science and technology schools."

Moje cites Discovery Middle School in Vancouver, Wash., as a good model for schools trying to "break the mold." With a focus on clustered classrooms and spaces designed for cooperative learning, Discovery, he says, exemplifies a school that was designed from "an educational point of view."

Steve Parker, AIA, of Grimm and Parker, Calverton, Md., agrees. "Discovery School is right in step with today's thinking on multidisciplinary education. . . . There's less departmentalization and more integration of subject matter. . . . The 800-square-foot classroom is not a thing of the past, but, with more emphasis on project work, there needs to be more 'grouping' sizes."

Quality, creativity emerge

Expanded uses for school facilities, the ongoing integration of technology, and new methods of teaching and learning are some of the significant forces influencing today's public school design. But there are other, more subtle trends that also are beginning to emerge. Among them:

■ **More creative and high-quality designs**. "We're seeing creativity in the architectural form that's now complementing educational programs," notes Day.

"We're using schools as examples of what quality should be—from heating and cooling to lighting and classroom structure," adds Moje. "They're more environmentally sensitive and efficient."

■ **Downsizing and reconfiguring traditional spaces**. Besides scaled down libraries with Internet access and vocational-education classrooms with computers as the central tool, John Orrick, AIA, of Smeallie, Orrick & Janka, Ltd., Baltimore, Md., cites key changes in classroom structure: "Open classrooms are out," he says. "We're back to self-contained rooms with four walls, but many have flexible designs with operable walls to combine spaces."

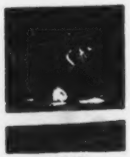
Orrick also notes that the cafeteria, auditorium, and gymnasium are being merged into "multipurpose rooms." And cafeterias are likely to be without an extensive food preparation area; instead, many have only steam tables and serving areas for food prepared at an off-site central kitchen.

■ **Office space for teachers**. "We're finally accepting the fact that teachers are professionals, and are planning teacher workspaces and planning areas," notes Day. "It used to be that the classroom was a teacher's office. Now we're creating group offices, with five or six teachers in an office, just like they often do in business."

Day allows that today's new-school design in general still has a long way to go before it mirrors changes in learning styles and the continuing integration of technology into the learning process. Yet, Moje points out, award-winning facilities such as Vancouver's Discovery School underscore the fact that high-quality school design "can stand up to high-quality design anywhere." ■

The review panel for this year's program consisted of C. William Day, senior analyst, KBD Planning Group, Inc., Bloomington, Ind.; Robert Moje, AIA, VMDO Architects, Charlottesville, Va.; Steve Parker, AIA, Grimm and Parker, Calverton, Md.; and John Orrick, AIA, Smeallie, Orrick & Janka, Ltd., Baltimore, Md.

DAY



MOJE

PARKER

ORRICK

GRAND PRIZE WINNER PROFILE

Discovery Middle School Meets Challenge of Size, Location

96
ARCHITECTURE
AWARD
WINNER

When the architects at Lein, Stanek & Willson, PS, Vancouver, Wash., set to work on the design for Vancouver's Discovery Middle School, they faced two key challenges: creating a sense of small community in a facility housing 950 students and integrating interesting design features into a site situated on a steep, sloping hillside.

They accomplished the first by creating "neighborhoods" on each of the building's three floors. Separate "houses," each designed as activity/work centers, are the central focus of these neighborhoods, with clusters of 10 classrooms surrounding them. The ground-floor house is known as the "tool box," an area for integrated arts and technology education, and features a variety of reference materials.

In meeting the challenge of building on a steep site, the architects embraced the community's vision of an "environment island" amidst an urban setting. Taking advantage of the site's natural environment, the design incorporates windows and skylights to bring views of the fir trees and wildlife inside, along with covered areas outdoors to give students comfortable access to the grounds.

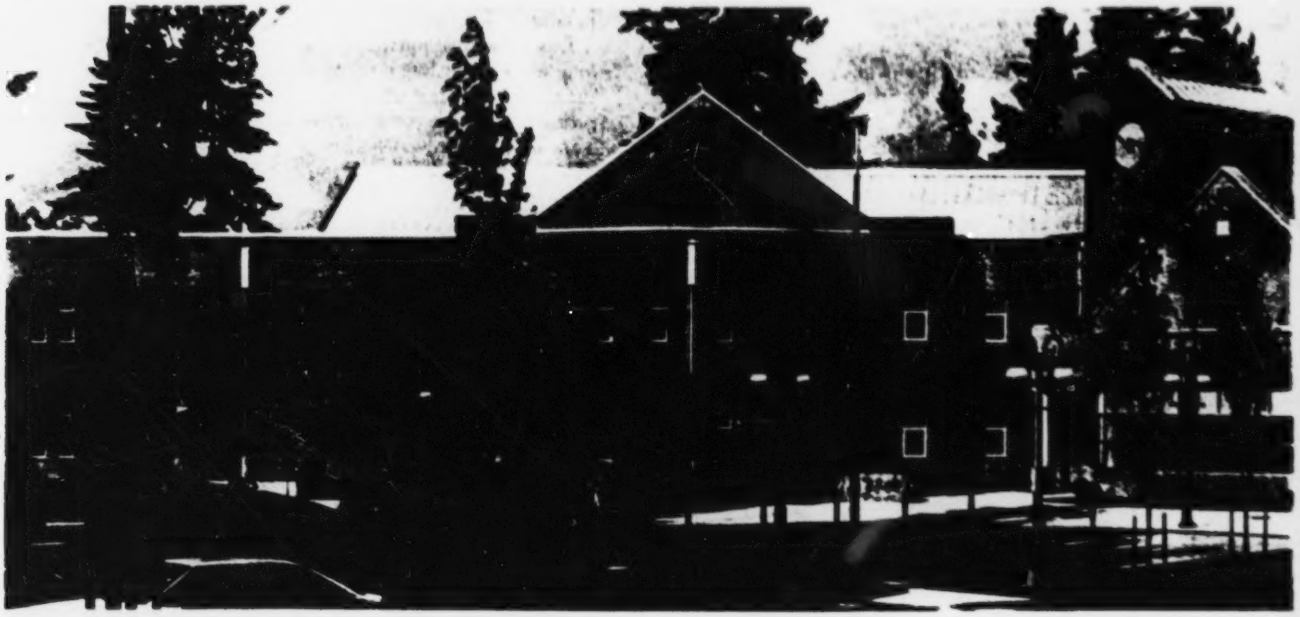
"It's an attractive school," comments architect John Orrick, AIA, of Smeallie, Orrick & Janka, Ltd., Baltimore, Md., and one of the judges. "It blended in so nicely with the site."

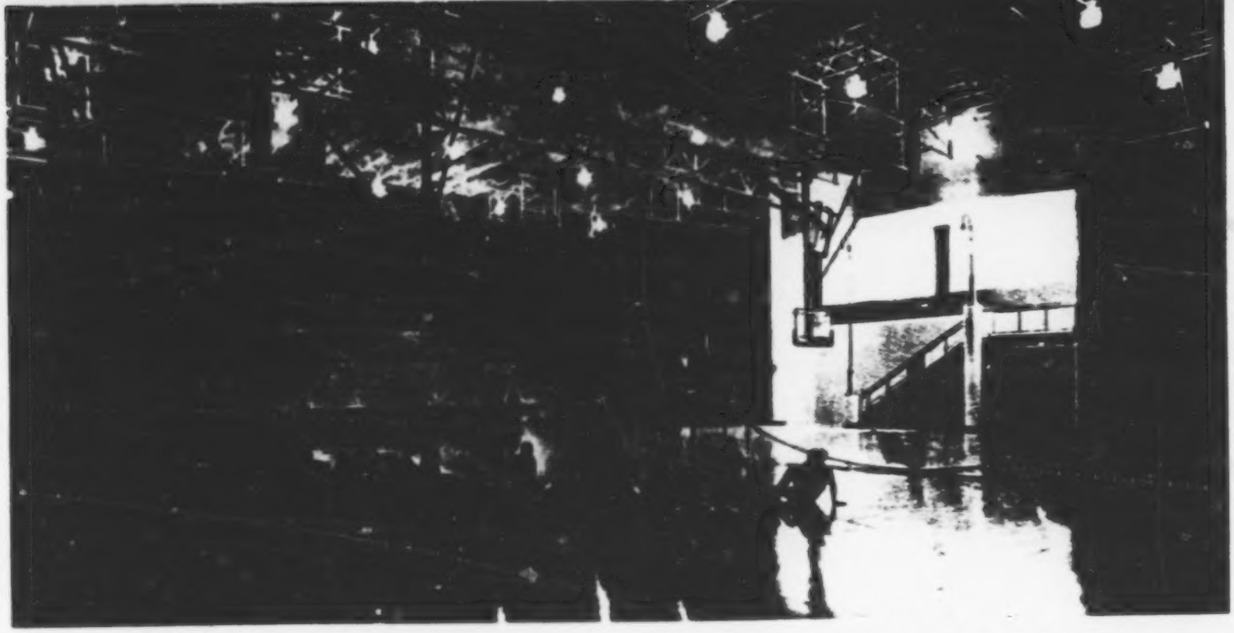
Technology at the forefront

In meeting the demands for more extensive and fully integrated technology, Discovery School features 1,200 computer stations, making "the computer as available as a pencil," according to John D. Wyckoff, AIA, the designer and project architect, who adds that "the distribution of technology was a primary vision of the school district."

In addition to extensive computer access, the school features two-way distance-learning capabilities. The building's design also distributes instructional media throughout the school, instead of concentrating resources in one location, such as the library. In fact, Wyckoff notes, there is no formal library in the building. Instead, media materials are housed in resource rooms on each of the three floors, along with a loft that serves as a casual reading space.

Bill Day of KBD Planning Group, Inc., Bloomington, Ind.,





another judge, calls the integration of technology one of Discovery's strongest features and points specifically to the downsizing of the library as a trend-setter for schools of the future. "This school doesn't have a library as we all think of one," he notes. "And this approach falls in place with the trend for the media center to be something other than a depository of books."

Complement to learning style

Discovery's instructional program incorporates today's newest approaches to education—and the building design complements this new style of learning. Discovery's students, in grades 6–8, spend one third of the day in individualized instruction (self- or teacher-directed), one third in cooperative-learning activities, and one third in large-group instruction (music, physical education, and so forth).

Bob Moje, AIA, a principal with VMDO Architects, P.C., Charlottesville, Va., and *Learning By Design* judge, says Discovery represents a school facility that was approached "from an educational point of view, then translated into physical design."

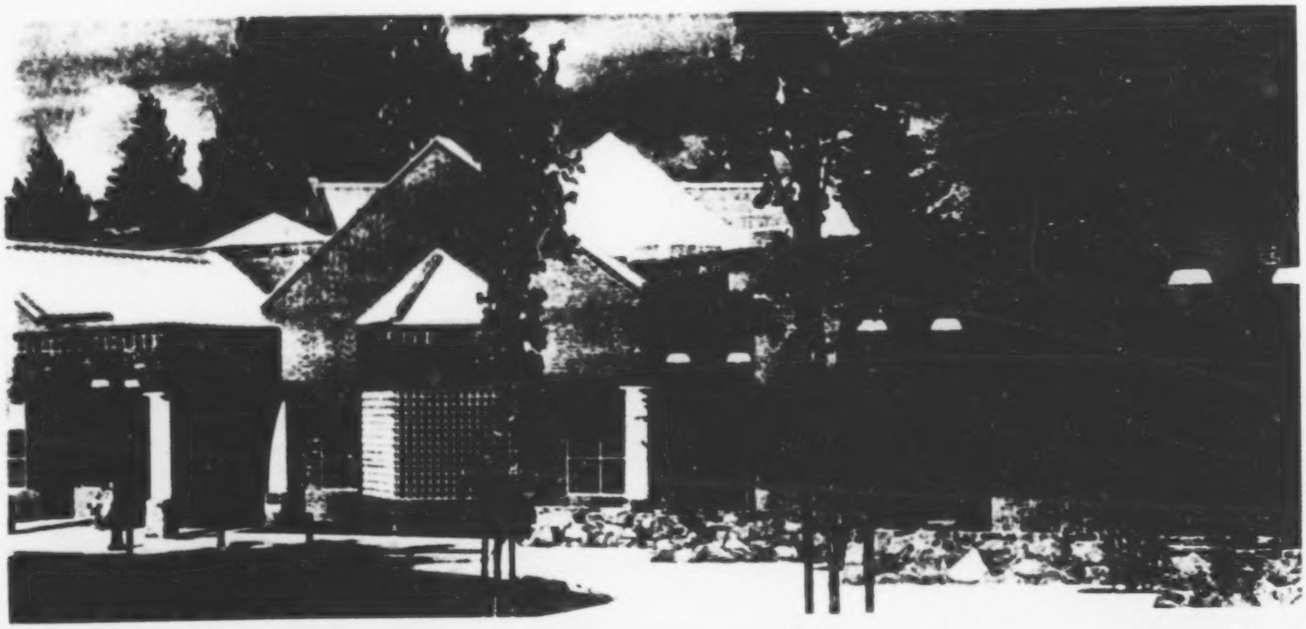
"Discovery School is right in step with today's thinking on multidisciplinary education," adds Steve Parker, AIA, of Grimm and Parker, Calverton, Md., also a judge.

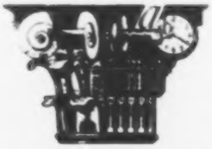
Instilling pride

High-quality design, attractive spaces, state-of-the-art technologies—all of these features may combine to make Discovery School a winner. But, public response is perhaps the most accurate barometer of a new facility's success, and Wyckoff says Discovery is being regarded as a jewel in this inner-city neighborhood of Vancouver.

"The response has been very positive," he says. "There have been numerous tours conducted for the community, and the school's principal has been terrific about getting kids to take ownership of the building through such activities as landscaping projects."

Noting that the school is situated in the most "urban" area of Vancouver, Wyckoff says there had been initial concern that the new building might be prone to vandalism. However, he points out, the facility is creating a sense of pride in the neighborhood and may be a first step toward "turning things around." ■





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MIDDLE SCHOOLS

Black Hawk Middle School
Wold Architects and Engineers
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Blairsville Middle/Senior High School
HHSDR Architects/Engineers
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Brittany Hill Middle School
Frangkiser & Hutchens
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Caledonia Middle School
GMB Architects-Engineers
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Central York Middle School
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Cottage Grove Junior High School
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Harza Northeast
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Fostoria Middle School
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Geneva Middle School
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Lebanon Intermediate School
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HMFH Architects, Inc.
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New Fairfield Middle School
Anderson La Rocca Anderson
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New Windsor Middle School
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Reed City Middle School
Wakely Associates Mt. Pleasant, Inc.
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Sage Park School
The S/L/A/M Collaborative/Russell
Gibson von Dohlen
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Silver Creek Middle/High School
Habiterra Associates
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O.S. Stapley Junior High School
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Coffee County High School
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Curtis Senior High School
Burr Lawrence Rising + Bates
Architects, P.S.
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Diamond Ranch High School
RTA Blurock-Morphosis
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King/Drew Medical Magnet High School
WLC Architects, Inc.
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Onate High School
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Puyallup Senior High School
Burr Lawrence Rising +
Bates Architects, P.S.
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Red Wing High School
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San Carlos High School
EMM/SHW Group Architects
Engineers Planners
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Schenevus Central School
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V.J.and Angela Skutt Catholic High School
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South Western Senior High School
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North Tonawanda High School/
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Smith Geston Duffy
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WE SERVE

ELEMENTARY SCHOOLS
Addition

ADAMS TOWNSHIP ELEMENTARY SCHOOL MARS, PENNSYLVANIA

Burt Hill Kosar Rittelmann Associates

Burt Hill Kosar Rittelmann Associates
400 Morgan Center
Butler, PA 16001-5977

John E. Kosar, AIA
(412) 285-4761

Design team
Brent D. Hilton, AIA
Principal-in-Charge

Peter T. Donnelly, PE
Mechanical Engineer

Kent A. Lewis
Electrical Engineer

Haydar K. Hassan, AIA
Designer

Troy J. Lunn
Technical Specialist

Mahnaz Q. Liaghat
Interior Designer

Client
Mars Area School District
(412) 625-1418

Grade span
K-5

Current building capacity
400

Current building area
57,104 square feet

Building area before addition/renovation
26,451 square feet

Total project costs
$3.87 million

Cost per square foot
$67

Space per student
142 square feet

Cost per student
$9,683

Completion date
October 1993

This simple 1940s rural facility once fronted a modestly traveled highway. Now, housing and retail developments have increased population and traffic, changing the characteristics of the area. The school district rapidly evolved from rural/agricultural to suburban.

Design goals for site planning reflected these changes. Massing of the project expresses the programmatic requirements and reminisces on the area's agricultural past.

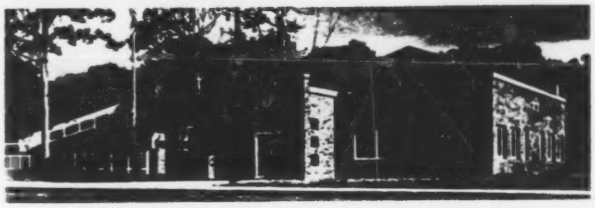
A sweeping arcade defines a central courtyard, acting as a pedestrian-way and connecting existing building wings to the new, expandable academic wing. Public functions of cafeteria, gymnasium, and music room adjoin the arcade.

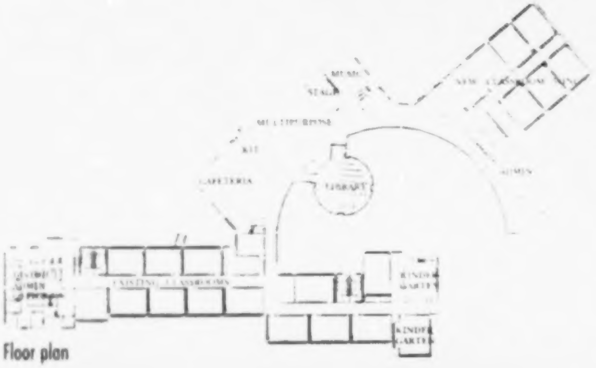
The arcade, cafeteria, and gymnasium are built of laminated wood beams and wood decking reminiscent of barn construction. The focal point of the courtyard is the library, with its peaked roof and openness evoking images of corn cribs.

Upgraded existing classrooms matched the new construction with finishes, casework, and mechanical/electrical systems. Each wing has its own color scheme to help students identify their progress through the grades, levels, and the building. The existing cafeteria and multipurpose room were converted into offices.

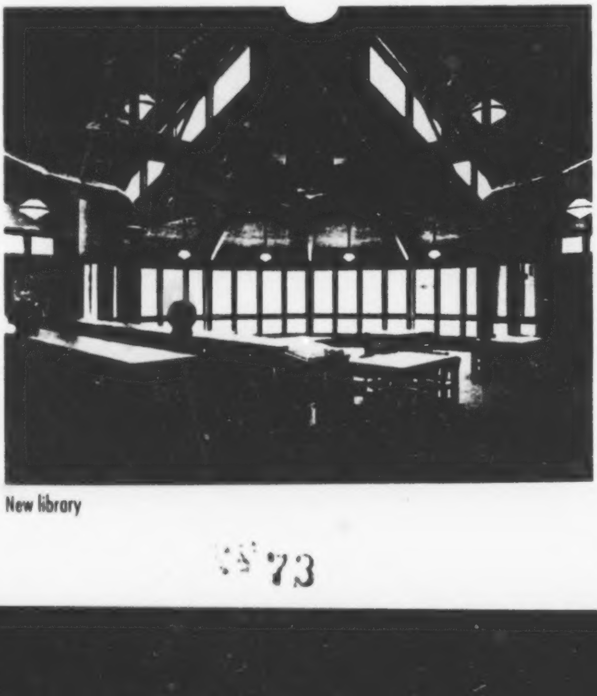
The arcade/promenade provides students with a new experience each day. Changing seasons, student artwork, and social interaction in the common areas tie the buildings together. ■

View of library and arcade addition


New main entrance



Floor plan


New library

ELEMENTARY SCHOOLS
Renovation/Addition

AUDUBON ELEMENTARY SCHOOL
AUDUBON, PENNSYLVANIA
L. Robert Kimball and Associates

L. Robert Kimball and Associates
Washington Square, Suite F
21 West Washington Street
West Chester, PA 19380

A. Stevens Krug, AIA, PE, CEM
(610) 692-2232

Design team
Bruce E. Bachtle, AIA
Project Architect

Paul J. Balough, AIA

William T. Bowers, AIA

Deirdre M. Cimino, ASID
Interior Design

Client
Methacton School District
(610) 489-5001

Grade span
K-5

Current building capacity
500

Current building area
56,500 square feet

Building area before addition/renovation
52,000 square feet

Total project costs
$3.9 million

Cost per square foot
$69

Space per student
113 square feet

Cost per student
$7,800

Completion date
September 1995

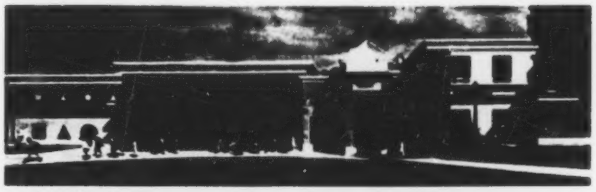
Due to increased development and population, the school district decided to reopen one of its two previously closed elementary schools. The Audubon Elementary School was enlarged and renovated to accommodate new classrooms, administrative areas, a large multipurpose room, and an elevator.

The existing school facility comprised a 1928 schoolhouse with five major additions. The resulting complex, functionally and architecturally, was very fragmented. These school wings were unified through the location of the new additions, use of related materials, relocation of the main entry, and design for the window-replacement pattern. Brick masonry arched towers were designed to identify the main entry areas into the school.

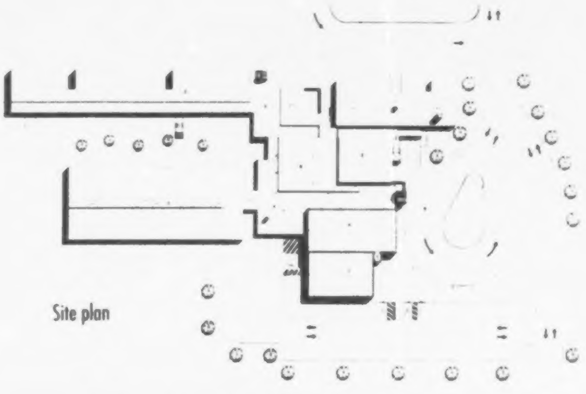
Site work for the project included the design of a new bus loop and additional parking areas. The facade of the multipurpose room, which borders the children's recreational space, was developed to become a "playful" study in geometric shapes, scale, pattern, and texture.

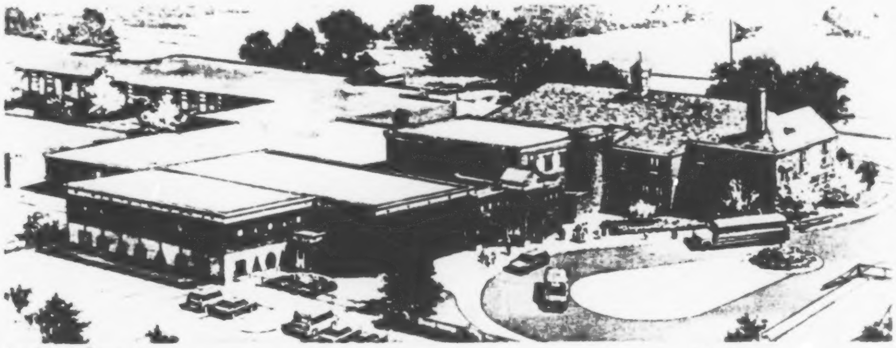
The existing building was upgraded to meet full ADA compliance, and new finishes were added throughout the school. Energy efficiencies included the replacement of mechanical and electrical systems, new roofing systems, new exterior doors and windows, and use of an exterior insulated panel system to reduce the glazing area.

The design and construction were completed within a nine-month time frame, in time for the first day of the 1995-96 school year. ■


Bus drop off entrance

Parent drop off entrance


Site plan


Rendering of overview

ELEMENTARY SCHOOLS
New Construction

BOULDER OAKS ELEMENTARY SCHOOL ALPINE, CALIFORNIA

RTA/Blurock

RTA/Blurock
1001 W. 17th Street, Unit F
Costa Mesa, CA 92627
(714) 646-9373

Design team
Thomas H. Blurock
Principal-in-Charge
Jim Devlin
Project Architect
Thomas Moore
Project Architect
Kevin S. Fleming
Project Team Member

Client
Alpine Union School District
(619) 445-8676

Grade span
K-5

Current building capacity
500

Current building area
28,000 square feet

Total project costs
$4 million

Cost per square foot
$110

Space per student
56 square feet

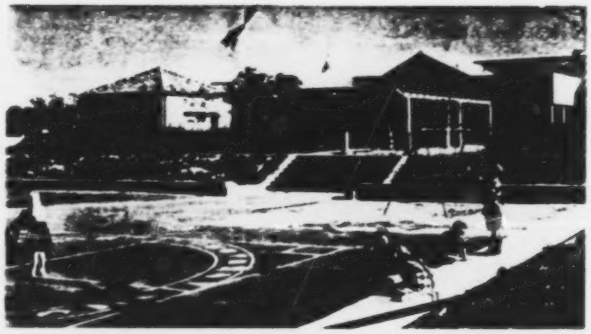
Cost per student
$8,000

Completion date
September 1993

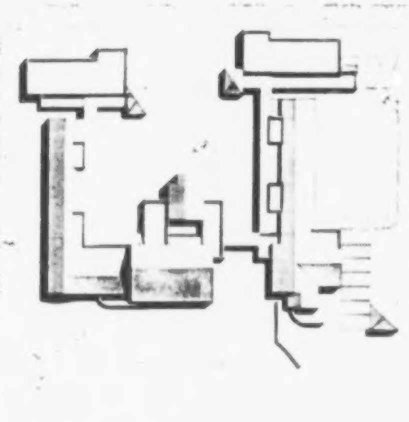
After being housed in relocatables for three years and watching the school being built in two phases, the students and staff were thrilled to finally move into the bright, cheerful new facilities. A fourth-grade student wrote, "I especially love our new library. Its architectural design is simply beautiful. I love the window seat and the windows right above it. It is a wonderful place to read books. The wood ceiling makes it feel warm and cozy. The classrooms are beautiful, too, because of all the windows. The sunlight coming through makes our room feel warm. The high, arched ceiling makes it feel big and roomy." Upon entering the library for the first time, a first-grader looked at the windows and the wood beam ceiling and said, "This library is like a palace full of books."

The courtyard design of the school encourages a community feeling among all grade levels. The open-ended plan organizes space for a quiet, contemplative study atmosphere while relegating the busier, more noisy activities—such as the playfields, foodservices, and larger school functions—to the outer side of the quadrangle. Near the entry lie the media center and multipurpose room. These serve as the central focus of the school and for the local community.

Principal Sharon Justeson notes that school assemblies and special activities are held on the grass courtyard. Outside each classroom, patios extend the learning space for both students and staff. "I also love the way the concrete pillars and covered walkways in front of the relocatables detract from their ugliness and make them seem a real part of the school," she adds. ■


View from the north

Courtyard—view toward kindergarten rooms


Site plan

Kindergarten

ELEMENTARY SCHOOLS
Addition

BOYCE ELEMENTARY SCHOOL CLARKE COUNTY, VIRGINIA

VMDO Architects, P.C.

VMDO Architects, P.C.
116 Second Street, N.E.
Charlottesville, VA 22902

Robert W. Moje, AIA
(804) 296-5684

Design team
Robert W. Moje
Principal-in-Charge

Daniel Simpson
Project Architect

Brian Broadus

Terry Scott Forbes

John Kisner

Client
Clarke County Public Schools
(703) 955-6100

Grade span
Pre-K through 5

Current building capacity
486

Current building area
52,173 square feet

Building area before addition/renovation
22,933 square feet

Total project costs
$3.35 million

Cost per square foot
$71

Space per student
107 square feet

Cost per student
$6,893

Completion date
April 1994

To accommodate an additional 175 students, VMDO designed a 30,000-square-foot addition to Boyce Elementary School. Collaboration with concerned parents, staff, and administration of Clarke County Public Schools ensured that the project would be a successful one.

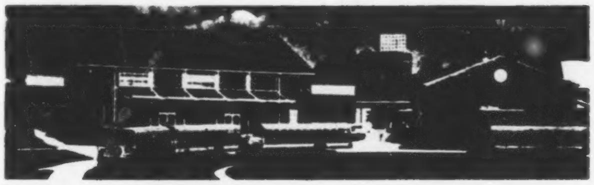
The original 1942 school—a single-story red-brick building with steeply sloped roofs and short classroom wings—creates an intimate atmosphere conducive to learning. To retain these qualities, while more than doubling the size of the building, the addition utilized similar building materials to visually tie the campus together.

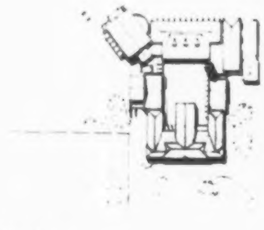
The school comprises five building units clustered around an outdoor courtyard, providing additional space for creative, stimulative learning. A bell tower is the focus of this courtyard, marking the central common area from a distance. The strategic location of the gymnasium is oriented apart from the orthogonal grid of the school, serving as a "community room."

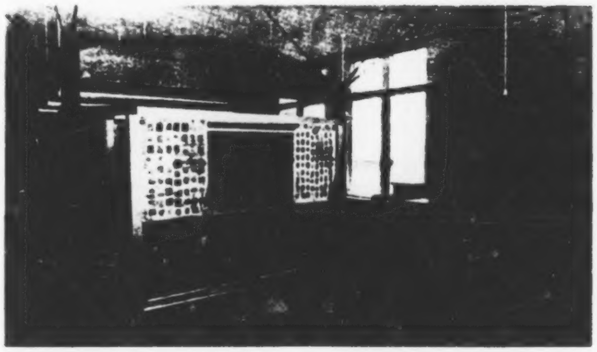
The many intriguing amenities include a weather station operated by students, with conclusions reported via computer modem to a Washington, D.C., television station. Each classroom is also linked via network to the center of information—the library.

The entire project was completed while the school remained in operation. Design and construction activities were incorporated as learning opportunities for students and staff. ■

Bell tower


Exterior


Site plan


Interior

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ELEMENTARY SCHOOLS
New Construction

CHALLENGER ELEMENTARY SCHOOL
THIEF RIVER FALLS, MINNESOTA
Dana Larson Roubal and Associates/DLR Group

Dana Larson Roubal and Associates
DLR Group Educational Facilities Consultants
7600 France Avenue, Suite 100
Minneapolis, MN 55435

Griff Davenport, AIA, CEFPI
(612) 831-7773

Design team
Griff Davenport, AIA, CEFPI
Educational Planner

Troy Miller
Project Manager

Matthew Johnson
William Gerstner
Todd Hesson
Design Team

Keith Stockman
Construction Administrator

Client
Thief River Falls School District
(218) 681-2345

Grade span
Pre-K through 5

Current building capacity
1,250

Current building area
140,000 square feet

Total project costs
$10.13 million

Cost per square foot
$72

Space per student
112 square feet

Cost per student
$8,103

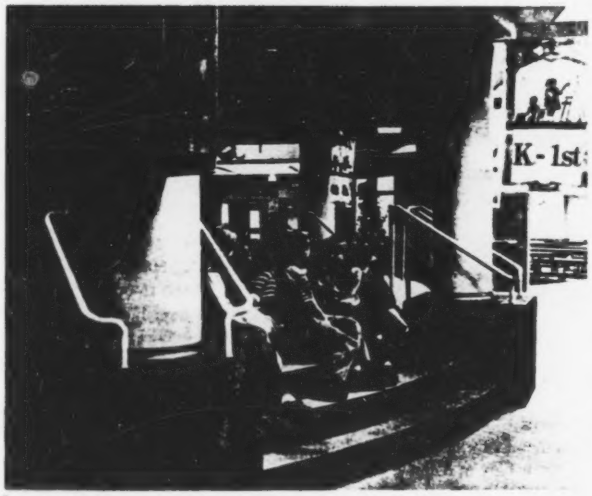
Completion date
September 1994

This new 140,000-square-foot elementary school serves 1,250 students, including infants, preschoolers, and kindergarten through fifth-grade students.

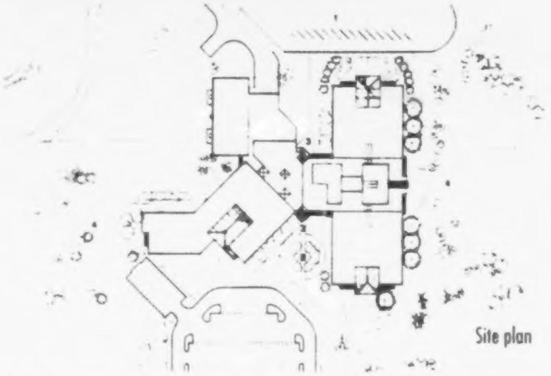
The design provides self-contained instructional services in each of four separate schoolhouses that include activity spaces for art and science and resource support spaces serving classroom teachers, specialists, and community volunteers. Interior environments are color-coordinated to preserve the identity of each "small" school. The exterior is designed as four "schoolhouses," each with its own entrance and identity. The building's main entry and core compartment tie together the components. Collectively, the design concept creates a community atmosphere that is scaled to the users of the facility.

Four gymnasiums, media and music facilities, and administrative spaces serve the entire school. The dining/food service/activity commons area serves as multiuse community and dining space.

To save operational expenses, a ground source heat pump heats and cools the facility by either extracting or discharging heat as needed into a closed-loop water circulation system connected to 150-foot-deep wells. The 500 wells act as a "heat exchange" for the embedded piping that circulates water throughout the building's heat pump systems and allow fluid to circulate to gain or discharge heat. ■



Commons area


Site plan

Main entrance

Media center

ELEMENTARY SCHOOLS
Addition

CHRIST THE KING ELEMENTARY SCHOOL
TOPEKA, KANSAS
Horst, Terrill & Karst Architects, P.A.

Horst, Terrill & Karst Architects, P.A.
2900 MacVicar Avenue
Topeka, KS 66611
Mark Franzen
(913) 266-5373

Design team
Gary G. Karst, AIA
Principal-in-Charge
Mark E. Franzen, AIA
Project Manager
Charles R. Smith, AIA
Job Captain
Steven A. Scannell, AIA
Specifications

Client
Roman Catholic Archdiocese of Kansas City in Kansas
(913) 721-1570

Grade span
Daycare/Preschool and K-8

Current building capacity
Daycare: 96; K-8: 550

Current building area
76,535 square feet

Building area before addition/renovation
33,665 square feet

Total project costs
$3.23 million

Cost per square foot
$65

Space per student
85 square feet

Cost per student
$4,995

Completion date
August 1995

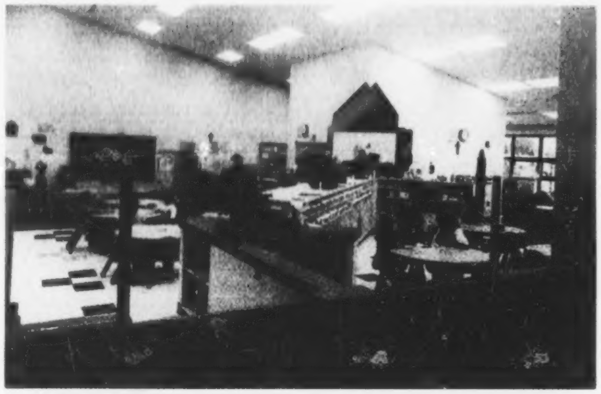
The elementary school is an addition to Christ the King Catholic Church and parish hall. The school will provide Christ-centered education and care to children from infancy through eighth grade. This facility utilizes many of the existing spaces, while allowing them to continue to serve the parish members' needs.

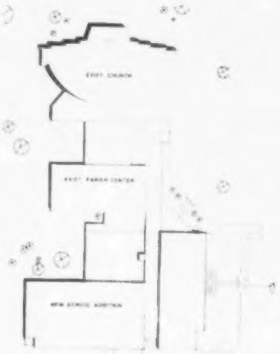
Newly constructed Phase I contains all academic areas, while Phase II will contain the foodservice/dining and physical education areas. Phase I will house 96 children in daycare/preschool and 550 children in kindergarten through eighth grade.

The two-story school complements the existing building functionally and aesthetically. Two classrooms per grade contain wardrobe areas and three computers each. Existing spaces were redesigned to house classrooms for 6th, 7th, and 8th grades; a science lab; and a locker bay; and to provide segregation of older and younger students. The remodeled social hall will serve as the school cafeteria and gymnasium until Phase II is built.

A two-story commons serves as the main circulation spine connecting the new school to the existing building. The commons is open at all hours to allow parishioners access to the daycare, library, school office, and public restrooms and separates the school from the daycare. A playful entrance enhances the daycare and strategically placed windows allow visual interaction for the young children looking into their future school. ■

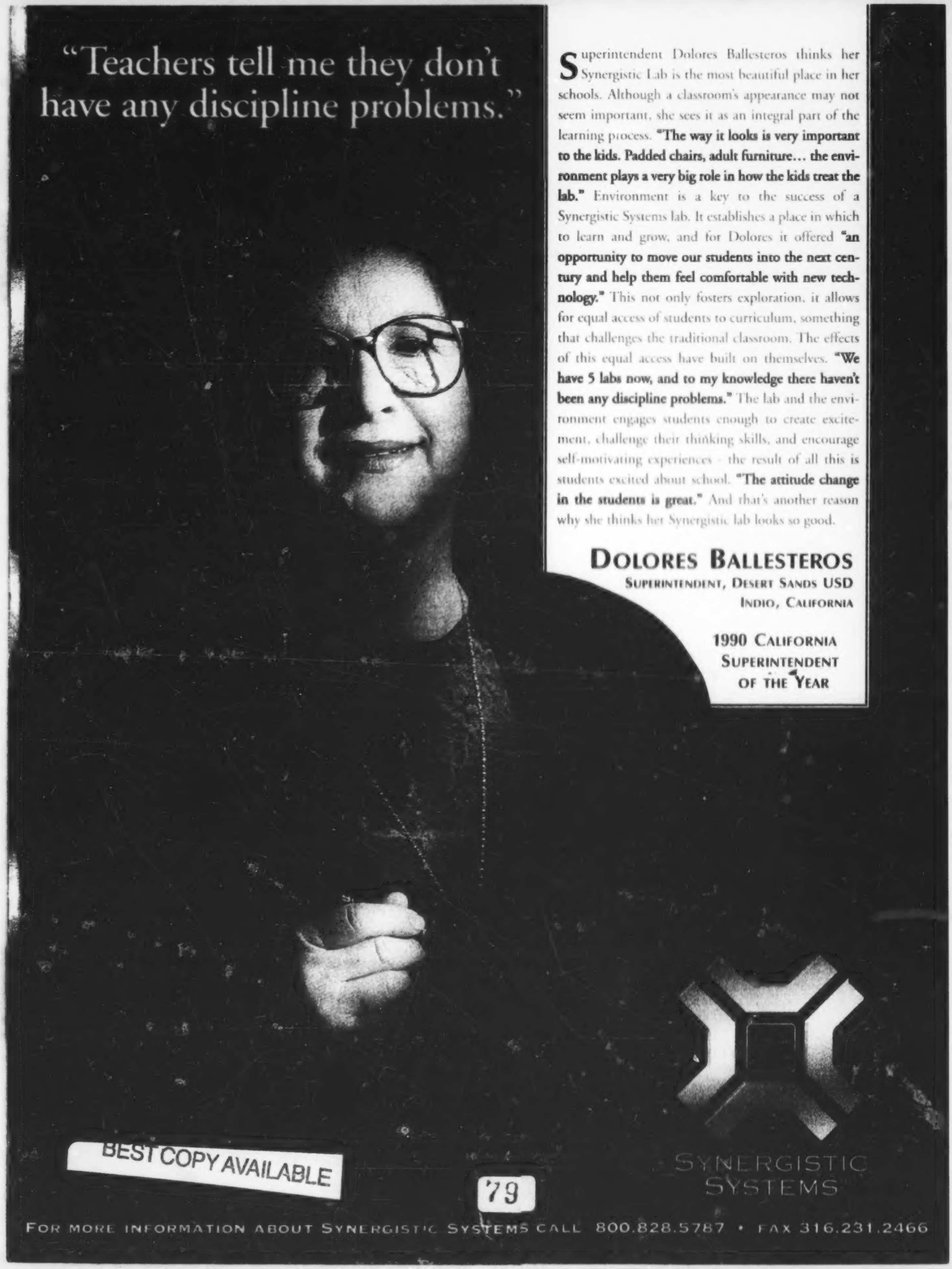
Main entrance


Preschool and daycare



Site plan

MEETING ROOM
Media center



"Teachers tell me they don't have any discipline problems."

Superintendent Dolores Ballesteros thinks her Synergistic Lab is the most beautiful place in her schools. Although a classroom's appearance may not seem important, she sees it as an integral part of the learning process. **"The way it looks is very important to the kids. Padded chairs, adult furniture… the environment plays a very big role in how the kids treat the lab."** Environment is a key to the success of a Synergistic Systems lab. It establishes a place in which to learn and grow, and for Dolores it offered **"an opportunity to move our students into the next century and help them feel comfortable with new technology."** This not only fosters exploration, it allows for equal access of students to curriculum, something that challenges the traditional classroom. The effects of this equal access have built on themselves. **"We have 5 labs now, and to my knowledge there haven't been any discipline problems."** The lab and the environment engages students enough to create excitement, challenge their thinking skills, and encourage self-motivating experiences - the result of all this is students excited about school. **"The attitude change in the students is great."** And that's another reason why she thinks her Synergistic lab looks so good.

DOLORES BALLESTEROS
SUPERINTENDENT, DESERT SANDS USD
INDIO, CALIFORNIA

1990 CALIFORNIA
SUPERINTENDENT
OF THE YEAR

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ELEMENTARY SCHOOLS
New Construction

COLLEGEVILLE ELEMENTARY SCHOOL BRYANT, ARKANSAS

Brooks Jackson Architects, Inc.

Brooks Jackson Architects, Inc.
2228 Cottondale Lane
Little Rock, AR 72202

Brooks Jackson, AIA, CSI
(501) 664-8700

Design team
Brooks Jackson, AIA, CSI
Principal Architect

H.F. "Bunny" Brown IV
Project Manager

Wallace E. Wilkins
Contract Documents

Kenneth G. King
CADD Analyst

Client
Bryant School District
(501) 847-2579

Grade span
K-5

Current building capacity
600

Current building area
48,967 square feet

Total project costs
$2.94 million

Cost per square foot
$60

Space per student
82 square feet

Cost per student
$4,906

Completion date
August 1995

The Bryant School District desired to build a new 600-student elementary school near a residential neighborhood. Specific concerns of the district included blending a large-scale structure into the surrounding aesthetic environment, separating bus and vehicular traffic, separating all service vehicles (food deliveries, garbage trucks, school supplies trucks), and creating a warm inviting atmosphere that prevents intimidation. Further, the building design had to be easily expandable in the future. The solution is a 48,967-square-foot structure that cost $2,943,849.

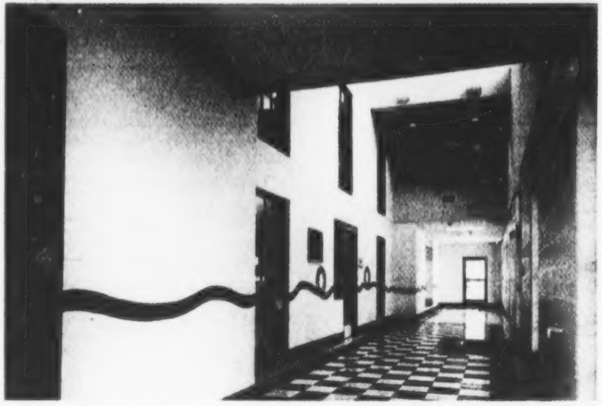
The vehicular and pedestrian traffic flows were designed to prevent any cross-traffic conflicts. The routing of drives and walks around the building are such that no direct relationship, either ingress or egress, is possible. Service traffic is contained in a dedicated street design that permits access only to the rear service area of the building.

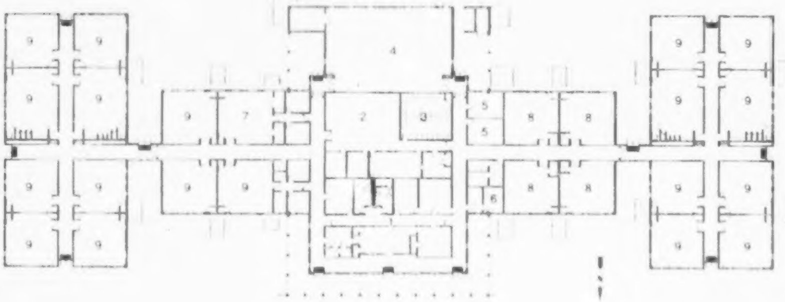
The building is designed with impressions of residential architectural elements found in the nearby neighborhood. Colonial columns of precast concrete for durability, roof dormers on a pitched roof, and residential-style shingles provide ties to the residential aesthetics. The exterior brick walls have split-faced concrete block quoins at all corners. That was an economical means through which the colonial design was furthered.

The interior of the building contains varied heights and widths of spaces to create excitement and transitional

North elevation

Entry plaza


Entry corridor with dormer



Floor plan

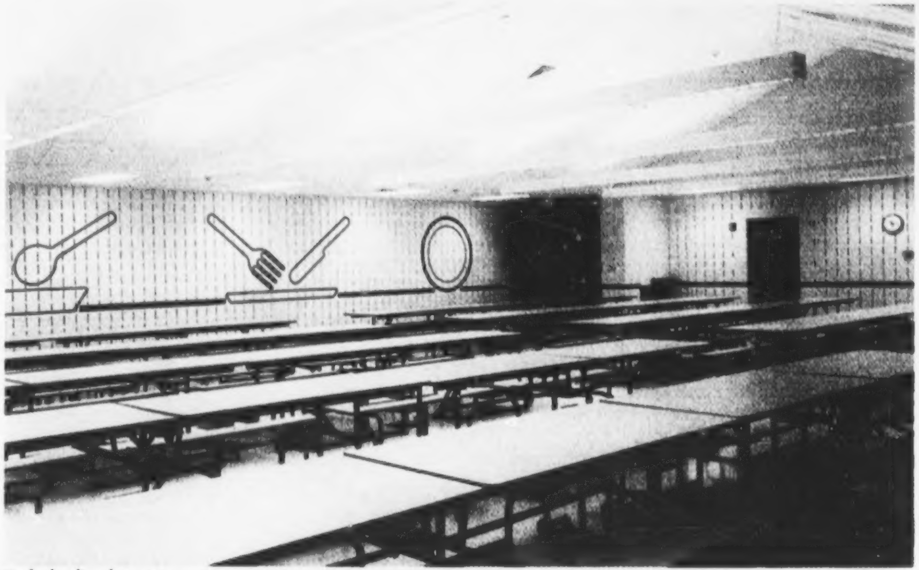
areas. Through the addition of primary colors, soft fabrics (acoustical) and super-graphics, the students and faculty feel at home in their "work" environment.

Acoustical issues are addressed with sound-block walls in the assembly and dining area. The ceilings and vaulted clerestory intersections are also lined with sound-absorbing materials. The dining-area ceiling is designed in an undulating pattern to add additional acoustical value as well as to create an interesting surface.

Expandability will be easily accomplished at a later date, as directed by the school board. Two classroom wings were constructed perpendicular to the core to reduce distance of travel, while allowing two classroom wing expansions in four locations—all of which could be accomplished without disturbing the core facility.

Current technology was designed and constructed for existing as well as future needs. Concealed conduit is installed for computer terminals in all rooms. Video and power supplement the other communication elements.

All support teaching areas are also individually designed. The media center, IMPAC lab, and music and art classrooms join to make a complete elementary campus. ■



Vaulted ceiling dining room

Vaulted office

Classroom corridor with graphics

ELEMENTARY SCHOOLS
New Construciotn

COLUMBUS ELEMENTARY SCHOOL MCMINNVILLE, OREGON

Arbuckle Costic Architects, P.C.

Arbuckle Costic Architects, P.C.
363 State Street
Salem, OR 97301
Alan Costic
(503) 581-4114

Design team
Kim Arbuckle
Principal-in-Charge
Alan Costic
Project Designer
Vandomelen Looijenga McGarrigle Knauf
Structural
Interface Engineering
Mechanical, Electrical
Westech Engineering
Civil
Andrew Leisinger
Landscape Design
James McConnell
Kitchen Consultant

Client
McMinnville School District
(503) 434-6551

Grade span
K-5

Current building capacity
600

Current building area
70,500 square feet

Total project costs
$5.63 million

Cost per square foot
$80

Space per student
118 square feet

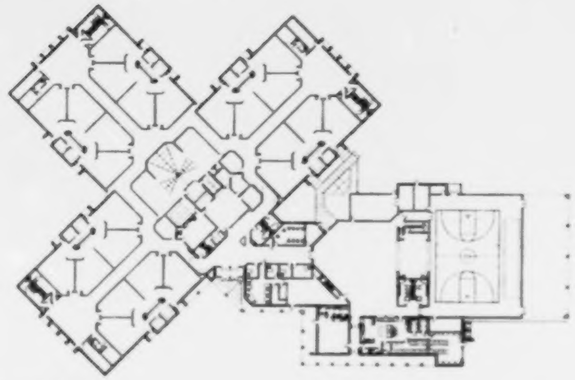
Cost per student
$9,383

Completion date
December 1994

During the early spring of 1993, two very important, if not earthshaking, events took place for the McMinnville School District. First, Oregon adopted a significant education reform act. Second, the community experienced a major earthquake. These two events had a great deal of influence on the development and design of the new Columbus Elementary School.

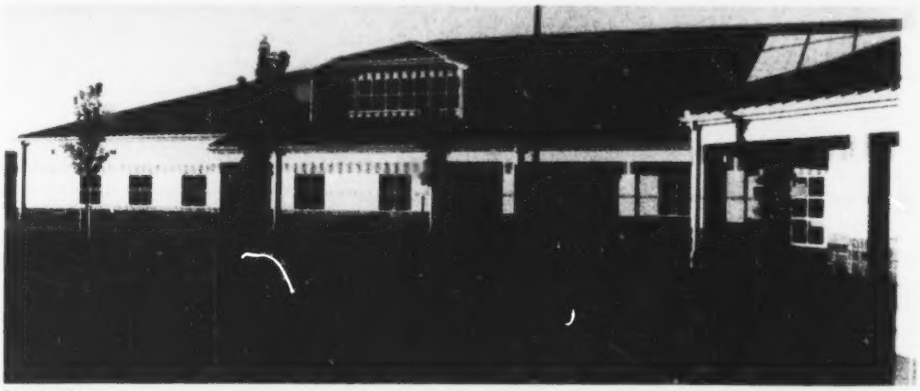
This school, housing 600 K-5 students, has been designed with three schools-within-a-school, each containing 200 students. Each school is made up of two pods of four classrooms, a mini-commons, and support spaces. The classrooms are designed in a semi-private fashion to provide maximum flexibility for interdisciplinary instruction. The plan is trying to accomplish the best from both the traditional closed classroom and the open-plan concepts.

The overall building plan was developed very much like a community, complete with smaller neighborhoods in the form of the classroom pods. The core of the school is the centrally located media center, administration offices, and staff resource areas. This portion of the building provides the connection to the common facilities that are used by both the students and the public. Included here are a community counseling office, public meeting rooms, a preschool, the kitchen, a gymnasium, and a common space for assembly and dining. ■


Ground floor plan

Media center

Classroom resource center


Exterior view

ELEMENTARY SCHOOLS
New Construction

DISCOVERY ELEMENTARY SCHOOL BRIGHAM CITY, UTAH

Valentiner Crane Architects

Valentiner Crane Architects
524 South 600 East
Salt Lake City, UT 84102

Steve Crane, AIA
(801) 575-8800

Design team
Steve Crane, AIA
Principal-in-Charge

Boyd McAllister, AIA
Project Architect

Client
Box Elder School District
(801) 734-4800

Grade span
K-6

Current building capacity
600

Current building area
42,673 square feet

Total project costs
$3.39 million

Cost per square foot
$79

Space per student
71 square feet

Cost per student
$5,650

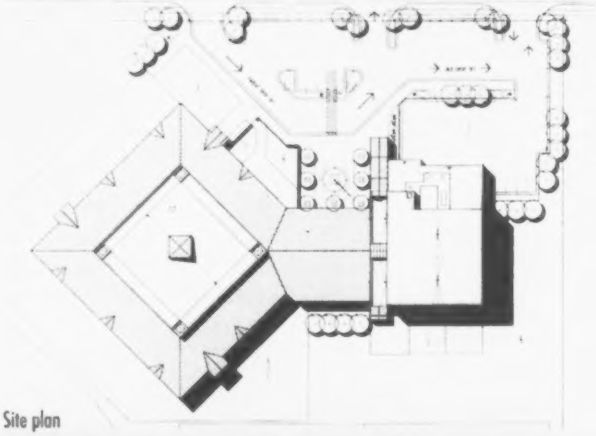
Completion date
September 1994

Life in this tiny community is dominated by two sources of income—farming and work in the nearby space shuttle manufacturing plant. Discovery Elementary was named in honor of the space shuttle and Thiokol, which manufactures solid rocket boosters for the U.S. space program. Farming is recognized by the school's entrance canopies. Just as the countryside is dotted with canopies covering haystacks for protection from the harsh elements, the entry canopies protect children from the same harsh weather.

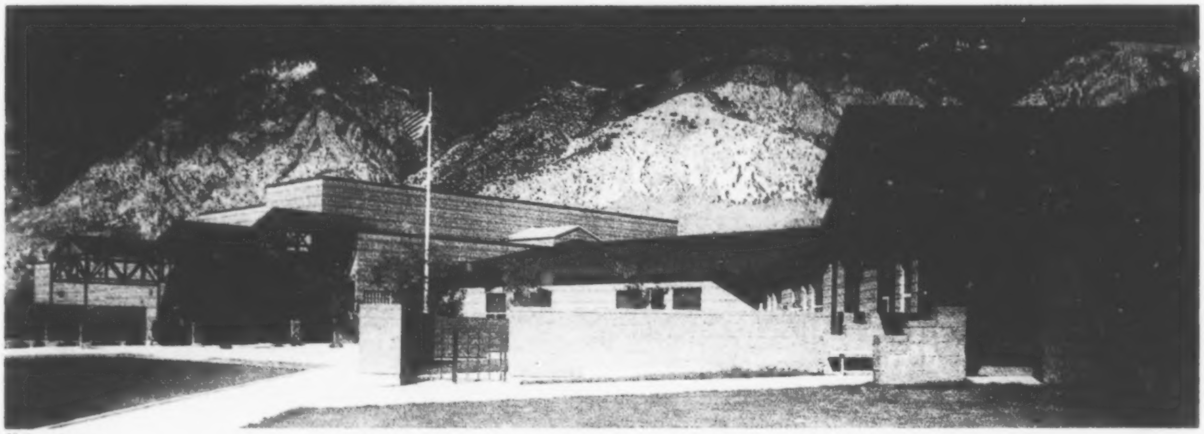
Sloping metal roofs reflect many of the surrounding buildings common throughout the area. The school's materials and colors are indicative of the area. ■

Library

Courtyard entrance



Site plan



Main entrance

ELEMENTARY SCHOOLS
New Construction

DOWNTOWN ELEMENTARY SCHOOL COLUMBUS, GEORGIA

Kersey & Luttrell Architects, P.C.

Kersey & Luttrell Architects, P.C.
105 Enterprise Court
Columbus, GA 31904-3090

Allan Kersey
(706) 660-0272

Design team
Allan Kersey
Project Architect

Starzer & Ritchie
Structural Engineers

Brewer & Skala
Plumbing/Engineers/Mechanical

Moore Engineering
Electrical Engineers

Freeman & Associates, Inc.
General Contractor

Client
Muscogee County School District
(706) 649-0935

Grade span
K-5

Current building capacity
675

Current building area
70,502 square feet + 5,923 square feet (covered area)

Total project costs
$5.1 million

Cost per square foot
$66

Space per student
113 square feet

Cost per student
$7,498

Completion date
September 1995

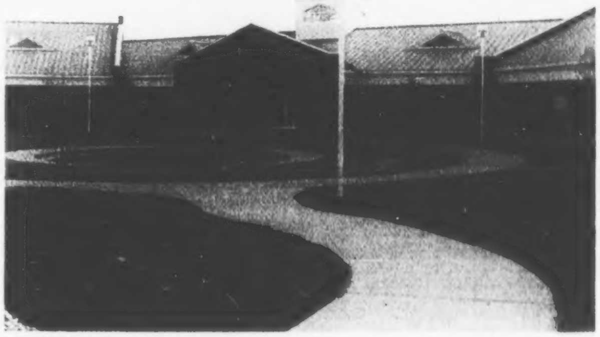
This school was built in the Downtown Historic District of Columbus. Special attention and design were required to blend with this area.

The exterior walls are constructed of brick and concrete masonry units. Classroom and corridor partitions are of concrete masonry units. Partitions in the administrative offices are of metal studs and drywall.

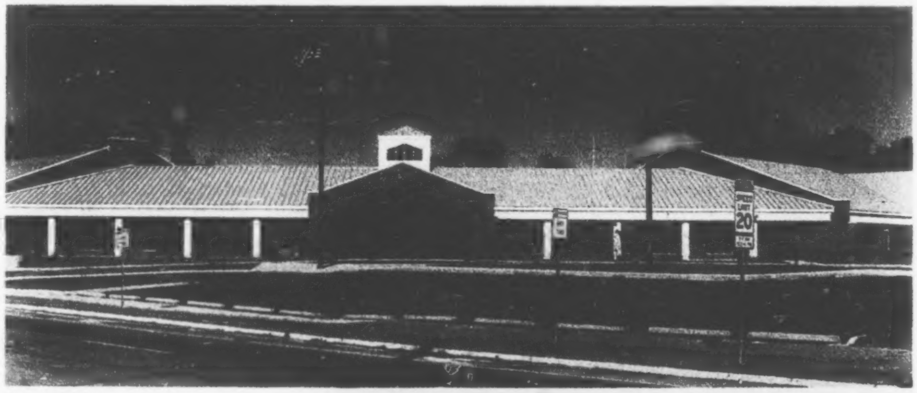
The roof of the classroom building is standing seam metal. The roof of the cafetorium/ gymnasium is modified bitumen.

An equipment platform/ mezzanine with precast concrete slabs as the floor was installed above all corridors for mechanical and electrical equipment and to provide fire rating for corridors.

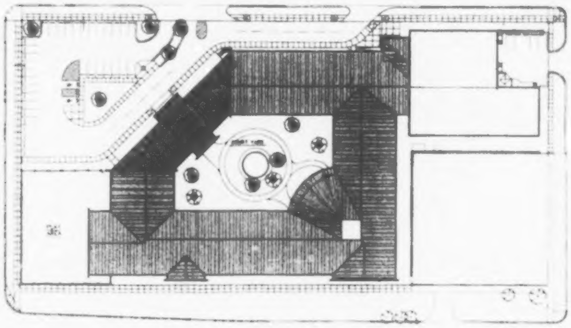
The HVAC system is a split system. Each classroom is individually controlled. ■



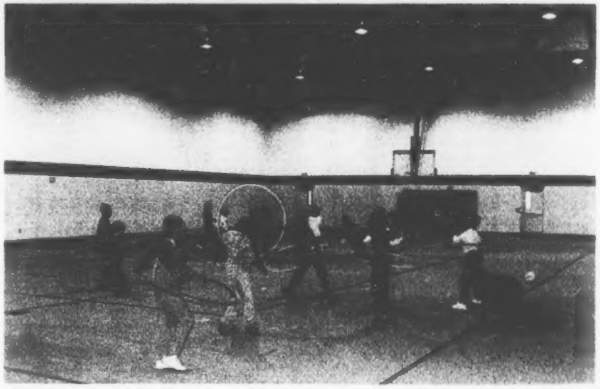
Courtyard



Main entrance



Site plan



Gymnasium

ELEMENTARY SCHOOLS
Addition

EDGEBROOK ELEMENTARY SCHOOL ADDITION McHENRY, ILLINOIS

Unteed Nelson Slack Anderson, Ltd.

Unteed Nelson Slack Anderson, Ltd.
1443 Holmes Road
Elgin, IL 60123

Tim A. Woolever
(708) 697-3363

Design team
Kent Anderson
Principal-in-Charge

Tim Woolever
Project Architect

Client
McHenry Consolidated School District 15
(815) 385-7210

Grade span
K-6

Current building capacity
Addition: 150

Current building area
Addition: 17,000 square feet

Total project costs
$1.85 million

Cost per square foot
$108

Space per student
113 square feet

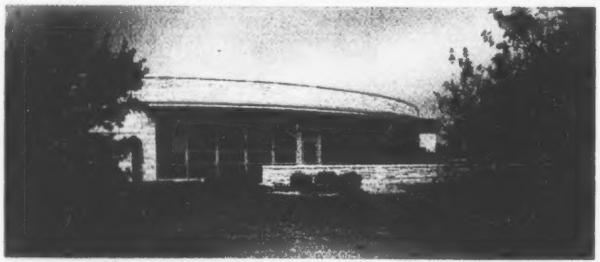
Cost per student
$12,333

Completion date
August 1995

This 17,000-square-foot addition, housing kindergarten classes and a new learning center, expands an existing 1950s' elementary school. The addition is placed in the front yard of the existing building to utilize the site's only remaining space. The school is located on a prominent intersection in the community; therefore, appearance and esthetics were prime considerations.

The addition is curved in form to present itself to both intersecting streets and to reflect the radiused walls of the original building. Lannon stone and buff-colored face brick were also used to relate to the building's original materials. Curved horizontal canopies and a stone base course lower the scale proportionate to the elementary students.

The addition is designed for 150 students and provides specialized support spaces designed to enhance the educational process. The interior includes numerous provisions for natural light and open views, including skylights, borrowed lights, and large classroom windows.

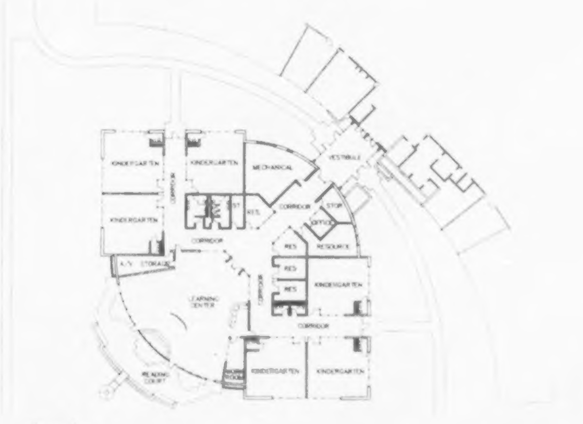


Learning center facade and reading court

Main connecting corridor

The learning center, which serves the entire school, is centrally located on axis with the connecting corridor. The center provides student work space, instructional and staff support areas, and an outdoor reading court where students can gather for storytelling and presentations. ■

Classroom corridor



KINDERGARTEN
KINDERGARTEN
MECHANICAL
VESTIBULE
CORRIDOR
KINDERGARTEN
RES.
CORRIDOR
STOR
OFFICE
CORRIDOR
RES
RESOURCE
A/V STORAGE
RES
RES
KINDERGARTEN
LEARNING CENTER
CORRIDOR
CORRIDOR
READING COURT
KINDERGARTEN
KINDERGARTEN

Floor plan

ELEMENTARY SCHOOLS
Addition

DR. W. T. GRIGGS ELEMENTARY SCHOOL POPLAR BRANCH, NORTH CAROLINA

HBA Architecture & Interior Design

HBA Architecture & Interior Design
207 Business Park Drive
Suite 200
Virginia Beach, VA 23462
Hollie Morris
(804) 490-9048

Design team
C. Michael Ross
Architect

Hickman-Ambrose, Inc.
Mechanical, Electrical, and Plumbing Engineers

Stroud-Pence and Associates
Structural Engineers

McDowell & Associates
Civil Engineers

Client
Currituck County Schools
(919) 232-2223

Grade span
Pre-K through 5

Current building capacity
650

Current building area
69,772 square feet

Building area before addition/renovation
36,022 square feet

Total project costs
$3 million

Cost per square foot
$89

Space per student
107 square feet

Cost per student
$4,615

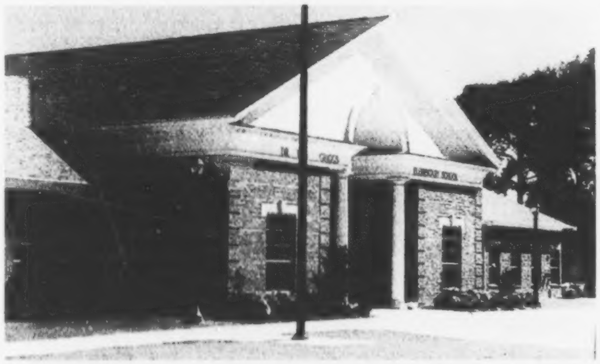
Completion date
September 1993

Dr. W.T. Griggs Elementary School was literally bursting at the seams with more than half of its student population housed in portable classrooms. The 1940s' vintage structure was also severely limited in its support facilities for an increased student population.

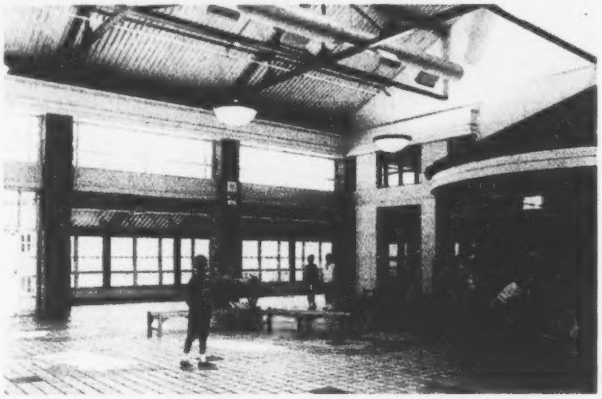
The design approach sought to create an improved organizational concept with interior circulation to all activities, as well as to honor the owner's request that the existing entrance be incorporated into the new design. As a result, a new media center became the focal point and was designed with the existing facade as its backdrop, giving respect to the existing building's rich architectural heritage. All new construction was designed to complement the traditional character of the existing building.

A commons area provides indoor activity and display space while serving as the connector between the old and new. A story corner with tiered seating is the primary architectural element in the commons area, while a collage of letters and numbers decorates the floor.

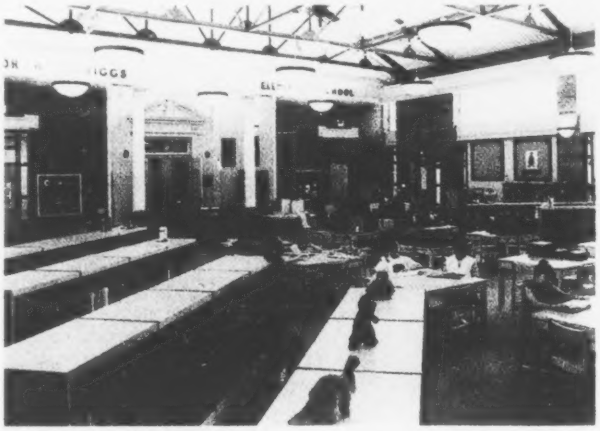
New classrooms and new administrative areas form a symmetrical wing mirroring the existing classroom wing. Two semi-enclosed courtyards provide intimate outdoor spaces adjacent to classrooms and commons area. Display cases lend additional playfulness to the interior space. ■



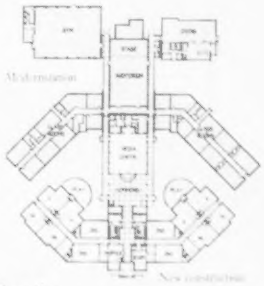
Main entrance



Commons

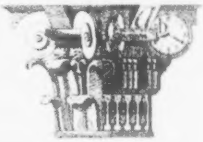


Media center



Floor plan

ELEMENTARY SCHOOLS
New Construction



HAMPTON ELEMENTARY SCHOOL ROCHESTER HILLS, MICHIGAN

Roy G. French Associates, Inc.

Roy G. French Associates, Inc.
150 Elizabeth Lane
Rochester, MI 48307
David G. French, AIA
(810) 656-1377

Design team
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Principal-in-Charge
T.J. O'Connor, AIA
Project Manager
A.J. Etkin Construction Co.
Construction Manager
James Partridge Associates
Mechanical/Electrical
McClurg & Associates, Inc.
Structural
MCS Associates, Inc.
Civil
David Reagan
Landscape Architect

Client
Rochester Community Schools
(810) 651-6210

Grade span
K-5

Current building capacity
675

Current building area
72,000 square feet

Total project costs
$6 million

Cost per square foot
$84

Space per student
107 square feet

Cost per student
$8,889

Completion date
September 1993

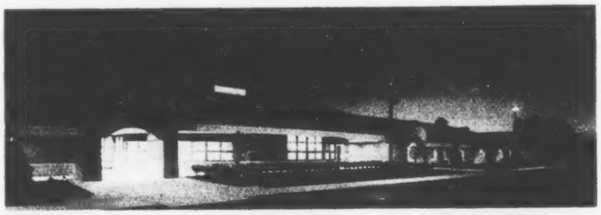
The design challenge was to create a school building that reflected its proud position as a community center and echoed the solid masonry school buildings constructed in the earlier part of this century.

The pitched roof is interrupted by a series of rounded dormers encasing louvers for fresh-air intake. The portico at the front of the building shelters students waiting for transportation.

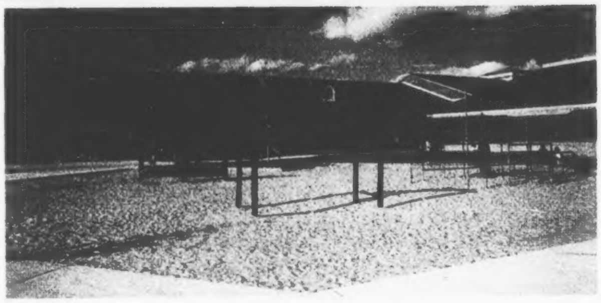
The cupola is an important design element, emulating the nostalgic bell cupolas typical of historic schools, and brings natural light into the heart of the school. When illuminated at night, the cupola emphasizes the school's function as a beacon or lighthouse for the community.

The school resides in the midst of a multifamily residential district. The compact site includes divided upper and lower elementary playgrounds, a bus loop separate from parent/visitor pickup, parking, and playfields.

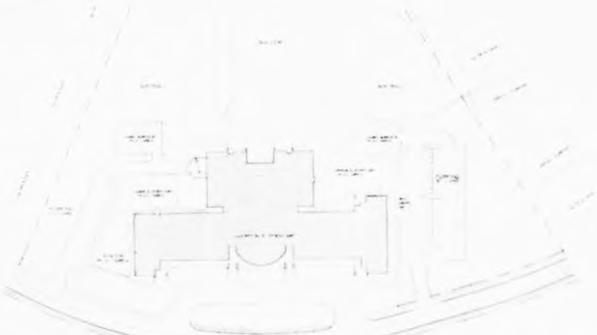
Classrooms are connected by the central core of administration, media center, and gym/cafeteria/stage. The administrative area is situated at the front of the school, providing staff with maximum visibility to the bus loading area and visitors entering the facility. The latest technological advances are incorporated into the facility, including a system connecting all classrooms to the media center and to administrative offices via a voice/video/data network. ■



Exterior



Courtyard



Site plan

Central vaulted corridor

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ELEMENTARY SCHOOLS
New Construction

HEATHERSTONE ELEMENTARY SCHOOL
OLATHE, KANSAS

The Hollis & Miller Group, Inc.

The Hollis & Miller Group, Inc.
5000 West 95th Street
Suite 100
Prairie Village, KS 66207

Gene Davis, AIA
(913) 642-6111

Design team
Gene Davis, AIA
Principal-in-Charge

John Southard, AIA
Project Manager

John Brown, AIA
Project Architect

Lou Shroba, AIA
Architect

Client
Olathe United School District #233
(913) 780-7000

Grade span
K-6

Current building capacity
580

Current building area
60,000 square feet

Total project costs
$4.6 million

Cost per square foot
$77

Space per student
103 square feet

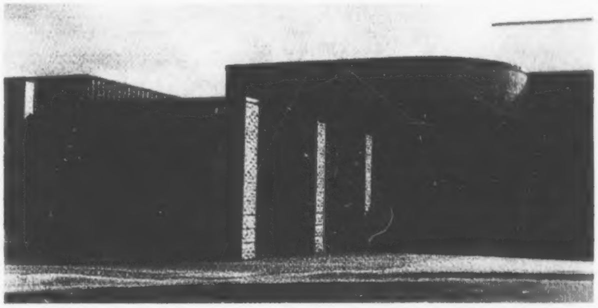
Cost per student
$7,963

Completion date
August 1995

The Hollis & Miller Group has designed all facilities for the Olathe School District since 1972, a total of more than $120 million in construction. With the rapid growth this school district has experienced in the last 20 years, it adopted an elementary school prototype floor plan to save on continuing design time. Over the years the prototype has been modified to accommodate needed changes. The prototype elementary floor plan is consistent from site to site, but each school is adapted to fit its neighborhood. Variations are found in site configuration, colors of finishes, and elevations.

Heatherstone Elementary School is the most recently completed elementary school in the district. With a modification to the prototype floor plan, this 60,000-square-foot facility serves 580 students and was completed in August 1995.

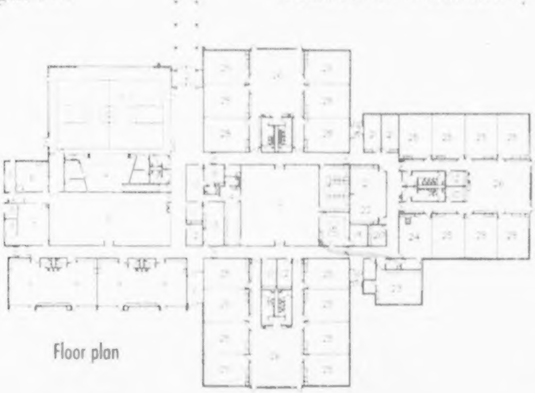
Technology was a driving factor in the design of Heatherstone Elementary School—it is the first new elementary school built with a technology infrastructure throughout the building. At the center of the school is the media center surrounded by three classroom pods. The media center is equipped with 10 computer workstations, several compatible with on-line computer catalogs. The computer lab, located off of the media center, contains 25 workstations. Each classroom is connected via fiber optic cable capable of handling at least eight computer stations per "drop," which tie into the district's wide-area network.

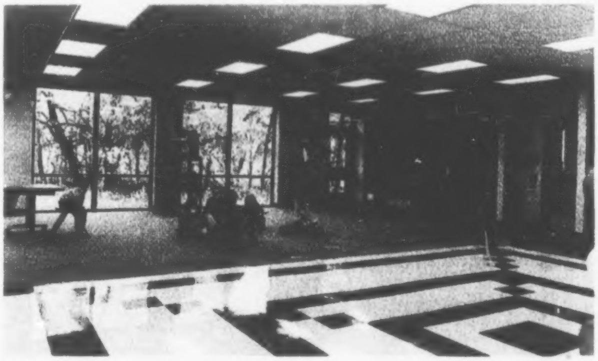

Main entrance

The classroom pods at Heatherstone function as separate "schools within a school." Each contains classrooms, a central activity space to accommodate flexible group gathering areas, an office, conference room, and restrooms. The activity areas are designed to be transformed into additional classrooms if needed due to student growth.

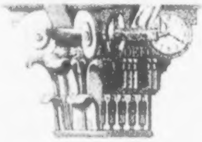
Gymnasium

Additional components of Heatherstone Elementary School include four kindergarten classrooms, a multipurpose room with performing platform, a music room, a dining area, a special education area, and a warming kitchen that is served by the district's food production center. ■


Floor plan


Activity area

ELEMENTARY SCHOOLS
Project in Progress



HIGHLANDS ELEMENTARY SCHOOL WINTER SPRINGS, FLORIDA

SchenkelShultz

SchenkelShultz
Architecture/Interior Design
200 E. Robinson Street,
Suite 300
Orlando, FL 32801
(407) 872-3322

Design team
J. Thomas Chandler, AIA
Senior Vice President

Daniel M. Tarczynski, AIA
Director of Design

Dale Ulmer, AIA
Project Manager

Timothy J. Eckmair
Project Designer

Client
Seminole County Public Schools
(407) 352-1252

Grade span
Pre-K through 6

Current building capacity
788–900

Current building area
105,575–112,000 square feet

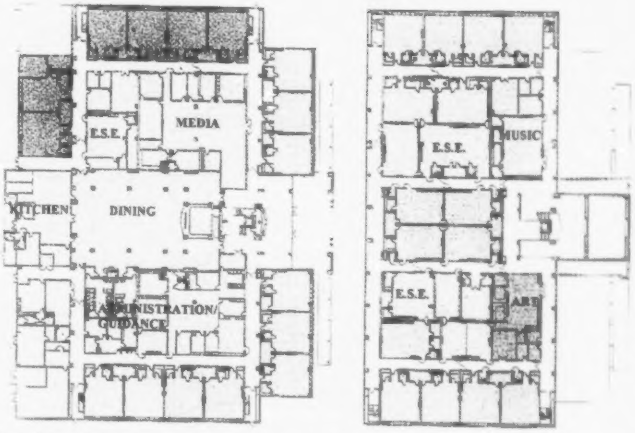
Total project costs
$7 million (1 story)
$7.4 million (2 story)

Cost per square foot
$62 (1 story)
$66 (2 story)

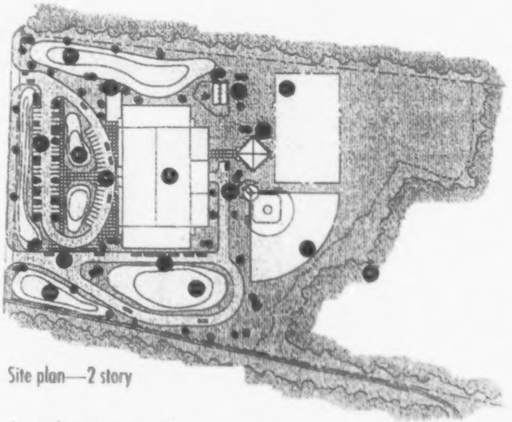
Space per student
134 square feet

Cost per student
$8,253

Completion date
August 1996



Floor plan—2 story



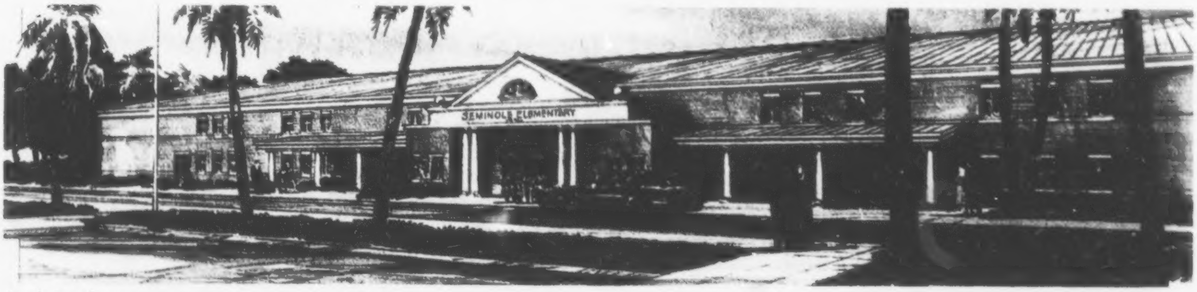
Site plan—2 story

The emphasis on security in today's schools, increasing land costs, and the ever-present funding shortage for educational facilities led SchenkelShultz to design a prototype elementary school that is secure, compact, and cost-effective.

Designed as both a one-story and a two-story building with a capacity ranging from 788 to 900 students, the plan offers several options for function and flexibility, curriculum changes, and future expansion of the facility, thus creating different floor plans that adapt to meet any school district's criteria. The compact design of the elementary school prototype enables it to be adapted to various site configurations and constraints by reducing site requirements between 10 and 20 percent.

SchenkelShultz is currently providing the plans for Seminole County Public Schools. Facilities Coordinator Chris Birkebak says, "The elementary school prototype designed by SchenkelShultz is a strong yet economical concept. The merits of the design include flexibility in customizing interior spaces and exterior elevations, security, and simple construction methods.

"I am intrigued by the two-story modification plan. Educational facilities should be designed as community centers also, and this plan lends itself well to dual functions," she continues. "With regard to rising real estate costs and land-locked sites, the compact two-story design offers optimum site utilization. I believe SchenkelShultz has developed a very responsive prototype and that school districts will benefit from their approach to design." ■



Rendering of entrance—2 story

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ELEMENTARY SCHOOLS
New Construction

HOLLOWAY ELEMENTARY SCHOOL
HOLLAND, OHIO

Stough and Stough Architects

Stough and Stough Architects
4246 Sylvania Avenue
Toledo, OH 43623

Craig A. Stough
(419) 473-2751

Design team
Craig A. Stough, AIA
Principal-in-Charge

Mary L. Glowacki, AIA
Project Architect

Robert E. Stough, AIA
Quality Control/Cost Estimator

Client
Springfield Local Schools
(419) 867-5600

Grade span
K-6

Current building capacity
630

Current building area
67,360 square feet

Total project costs
$4.25 million

Cost per square foot
$63

Space per student
107 square feet

Cost per student
$6,740

Completion date
September 1993

The educational specifications called for the classrooms to be clustered around a central media center—the typical double-loaded classroom corridors in long rectangular wings would simply not be acceptable. In response, our design created a centrally located 4,200-square-foot triangular media center under a 35-foot-high skylighted pyramid dome that creates a free span area 100 feet long on each side.

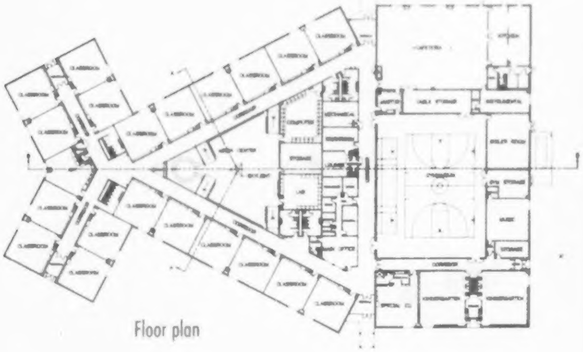
Modern classrooms with operable walls, extensive cabinet work, and modern electronic interconnection are clustered around the media center. A large gymnasium with wood floor, separate cafeteria, kitchen, and music room were designed to be isolated from the rest of the building for sound control and for security during nighttime activities. Kindergarten classrooms have direct outside access, and special facilities are provided for the special education classroom.

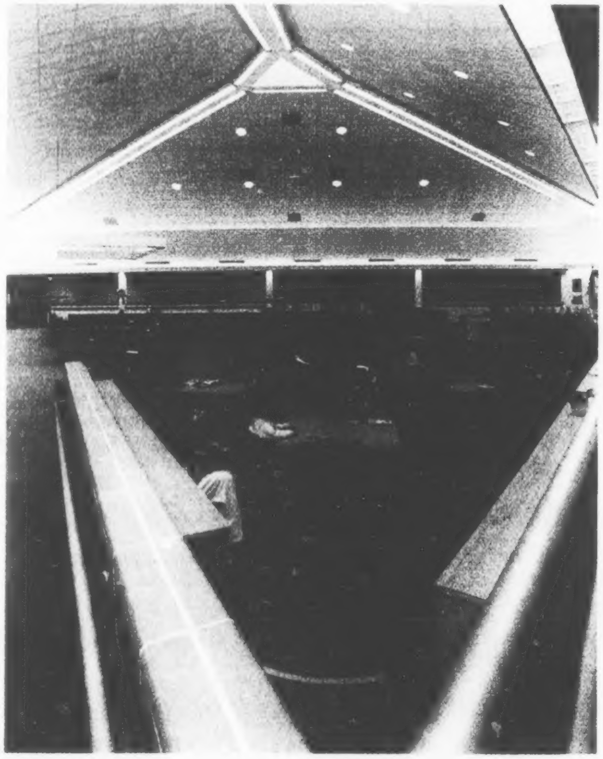
Main entrance

Rear elevation

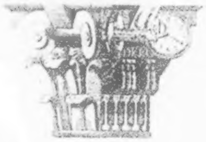
Finishes were selected to last for many decades of service. The exterior is face brick with limestone accents and features a sloping, standing seam metal roof. Combined with aluminum windows and doors, the exterior is maintenance free.

The interior has terrazzo corridor floors and brick and structural glazed tile walls. Classrooms are carpeted. The entire building is air-conditioned. ■


Floor plan


Media center

ELEMENTARY SCHOOLS
New Construction



1996 ARCHITECTURE AWARD WINNER LEARNING BY DESIGN

JORDAN & JACKSON ELEMENTARY SCHOOLS MANSFIELD, MASSACHUSETTS

HMFH Architects, Inc.

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139
John Miller, AIA
(617) 492-2200

Design team
John Miller
Principal-in-Charge
Robert Juusola
Project Manager
Callie Trainor
Job Captain

Client
Mansfield Public Schools
(508) 261-7500

Grade span
K-5

Current building capacity
600 per school

Current building area
143,000 square feet

Total project costs
$14 million

Cost per square foot
$98

Space per student
119 square feet

Cost per student
$11,634

Completion date
1992

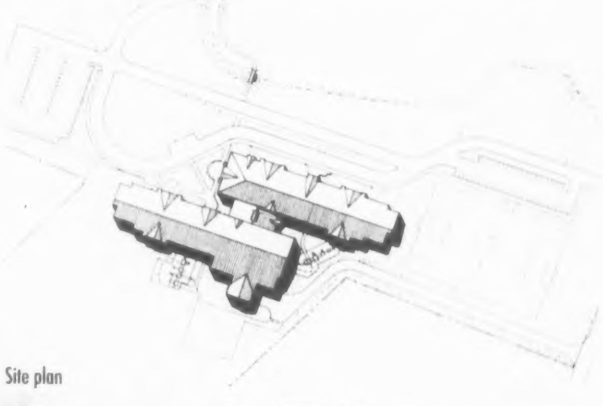
In response to a very rapid growth in its school-age population, this community decided to build two identical K-5 schools within the same structure, on a site adjacent to the town's existing high school, middle school, elementary school, and kindergarten.

Each school accommodates 600 students within separate wings of the complex. The two schools operate independently, with separate administration and staff, but share a gymnasium, cafeteria, library, and multipurpose room with platform/stage. This "school within a school" approach provides small, individualized programs for both the Jordan and the Jackson schools without having to duplicate common areas.

Distinctive shapes act as visual landmarks for the entrances to each school. Pushing one school to the front of the "core" and one to the rear helps break down the massing of this large structure. On the interior, each school's main corridor intersects with the major common spaces that are located near each school's entrance. This arrangement provides the community with easy access to these core spaces for after-hours use, without having to open up the entire school. Movable partitions in the cafeteria, gymnasium, and multipurpose room provide the flexibility to handle groups and activities of various sizes.

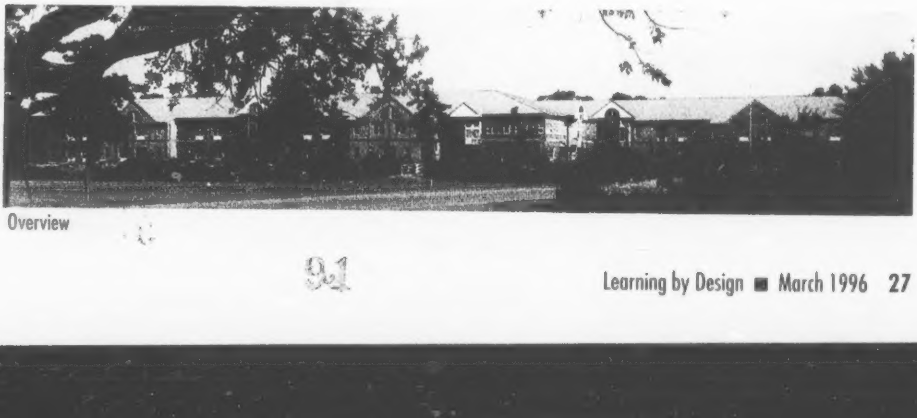
To create a lively environment for learning, bold colors were used throughout, with different palettes for each school. Large, two-story entry lobbies accent each school's entrance, opening up the first and second floors to one another. Second-floor classrooms feature exposed, color-accented roof structure and ductwork. ■

Library



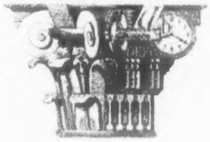
Site plan

Entrance



Overview

ELEMENTARY SCHOOLS
New Construction



LANDISVILLE PRIMARY CENTER LANDISVILLE, PENNSYLVANIA

The Ray Group Inc.

The Ray Group Inc.
127 East Orange Street
Lancaster, PA 17602
William C. Wagner II
(717) 392-6502

Design team
Michael R. Patton, R.A.
Project Director
Bonnie M. Sowers, AIA
Project Manager
Donald D. Searle, AIA
Project Architect
Steven F. Musselman
Richard Krumrine

Client
Hempfield School District
(717) 898-5561

Grade span
K-3

Current building capacity
725

Current building area
75,886 square feet

Total project costs
$8.1 million

Cost per square foot
$106

Space per student
105 square feet

Cost per student
$11,141

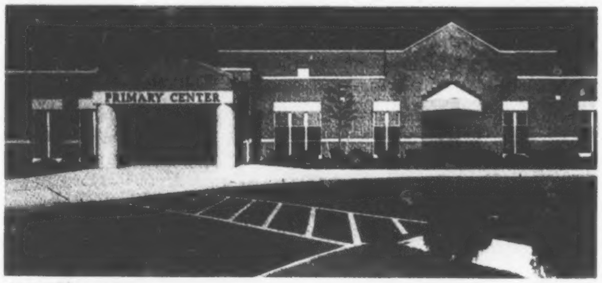
Completion date
November 1994

The Landisville Primary Center is part of a large campus that houses other elementary and secondary buildings. This early childhood facility was designed for kindergarten, first-, second-, and third-grade children and has a capacity of 725 students. A sister school, the Landisville Elementary School, is located only about 500 yards away. The primary center's capacity warrants having its own art room, library, music room, multipurpose room, and administrative staff despite its proximity to the elementary building.

The design separates academic space (with its four distinct team areas) from the activity area, which has the library as its central focus. The T-shaped building has the academic area at the top of the "T" and is pierced in the center by the library and other common-use spaces, such as the computer room and small-group assembly areas.

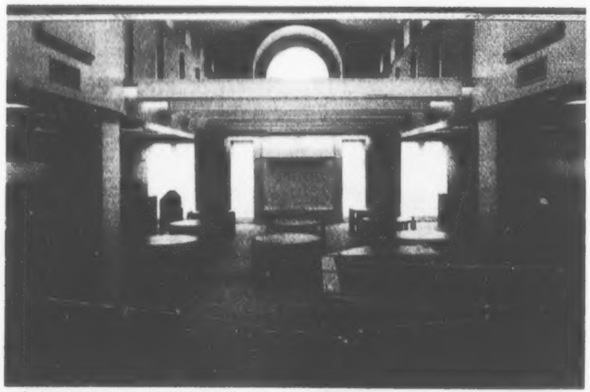
The lower stem of the "T" contains all other activities (large-group instruction area, multipurpose room, art room, music room, and administrative office) and the main public entrance and student drop-off area. This section can easily be closed off from the classrooms in the evening to accommodate community use.

The design is simple and straightforward. ■


PRIMARY CENTER

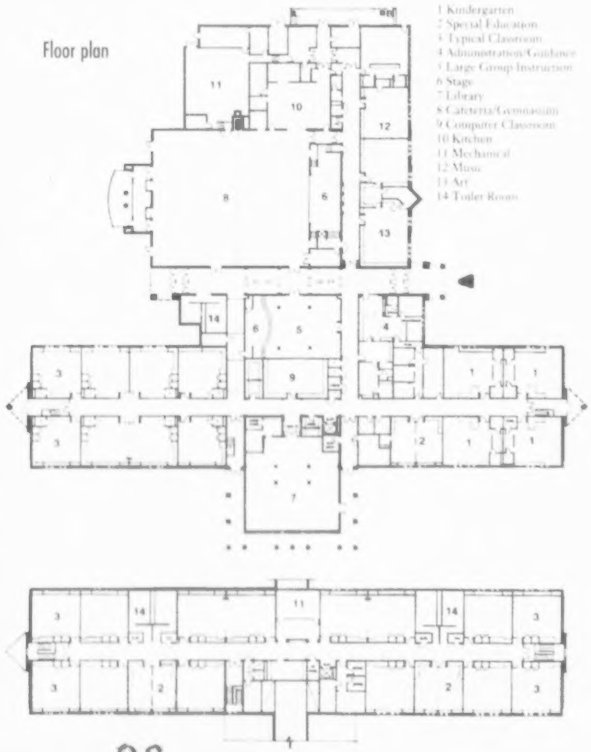
Main public entrance

Corridor

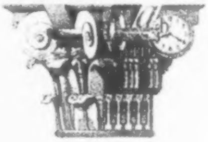


Library

Floor plan


1 Kindergarten
2 Special Education
3 Typical Classroom
4 Administration/Guidance
5 Large Group Instruction
6 Stage
7 Library
8 Cafeteria/Gymnasium
9 Computer Classroom
10 Kitchen
11 Mechanical
12 Music
13 Art
14 Toilet Room

ELEMENTARY SCHOOLS
New Construction



ANNA LAWRENCE ELEMENTARY SCHOOL
TUCSON, ARIZONA

Durrant Roberts/Dinsmore

Durrant Roberts/Dinsmore
450 W. Paseo Redondo,
Suite 130
Tucson, AZ 85701

Philip W. Dinsmore, FAIA
(520) 628-8386

Design team
Philip Dinsmore, AIA
Principal-in-Charge

Kurt Wadlington, AIA
Project Manager

Karl Derrah, AIA
Project Designer

Client
Tucson Unified School District
(520) 617-7175

Grade span
3-5

Current building capacity
450

Current building area
49,323 square feet

Total project costs
$4.1 million

Cost per square foot
$83

Space per student
109 square feet

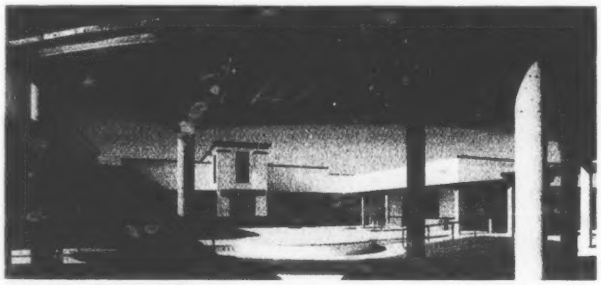
Cost per student
$9,090

Completion date
August 1995

The new Anna Lawrence Elementary School is a replacement third through fifth grade school that serves neighboring students and families, including those from the nearby Pascua Yaqui Indian Pueblo. The influence of the Yaqui and Hispanic cultures on the design of the school results in not only a handsome facility for the Tucson Unified School District but also one that is timeless and well-suited to the energy demands of a building in the Southwest.

Organized around a central ceremonial courtyard, the major building elements are linked together by a protective, uninterrupted canopy that provides shade as well as a welcoming transition to the interior. The building elements are defined to two intersecting axes. These axes, in turn, are oriented to the four cardinal directions. The traditional meanings given to these compass points have long been associated with the native peoples of the Southwest.

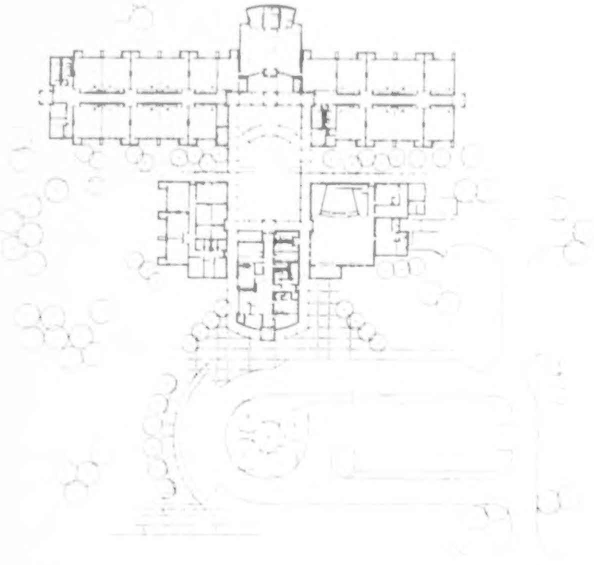
In the central court and at all building entries, native red sandstone has been placed to emphasize the transition to specific ceremonial spaces. At the north face of the media center, facing on the neighboring county park complex, a large patterned curved masonry wall is used to terminate the major formal axis. ■



Main entrance

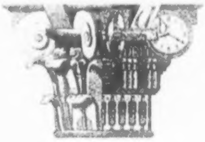
Hallway

Computer classroom



Site plan

ELEMENTARY SCHOOLS
New Construction



1996 ARCHITECTURE AWARD WINNER LEARNING BY DESIGN

CHARLES A. LINDBERGH ELEMENTARY LITTLE FALLS, MINNESOTA

Short Elliott Hendrickson Inc.

Short Elliott Hendrickson Inc.
113 South Fifth Avenue
P.O. Box 1717
St. Cloud, MN 56302-1717

Bradley F. Forbrook, AIA
(612) 252-4740

Design team
Bradley F. Forbrook, AIA
Principal-in-Charge

Scot Storm
Project Manager

Robert Pauly
Project Designer

Mark Anderson
Project Designer

Client
Independent School District No. 482
(612) 632-2921

Grade span
K-5

Current building capacity
800

Current building area
101,300 square feet

Building area before addition/renovation
48,000 square feet

Total project costs
$4.7 million

Cost per square foot
$27 (remodeling)
$64 (new construction)

Space per student
119 square feet

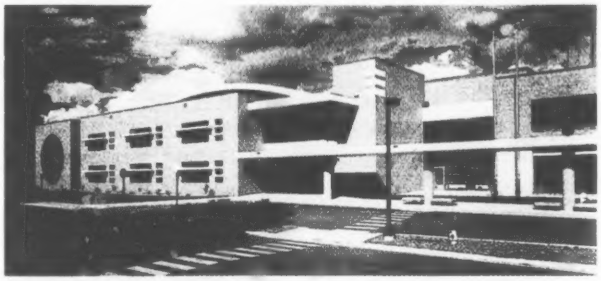
Cost per student
$5,869

Completion date
June 1994

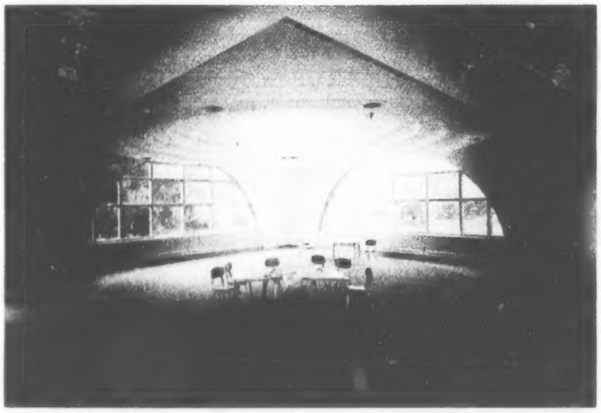
The existing 1950 Charles A. Lindbergh Elementary School was far over capacity. Community sentiment, however, prohibited replacement.

Short Elliott Hendrickson upgraded the existing 48,000-square-foot building while adding 53,300 square feet including, 12 classrooms, a two-story media center, a gymnasium/multipurpose room, and foodservice facilities. The resulting building is capable of serving 800 students in Grades K through 5.

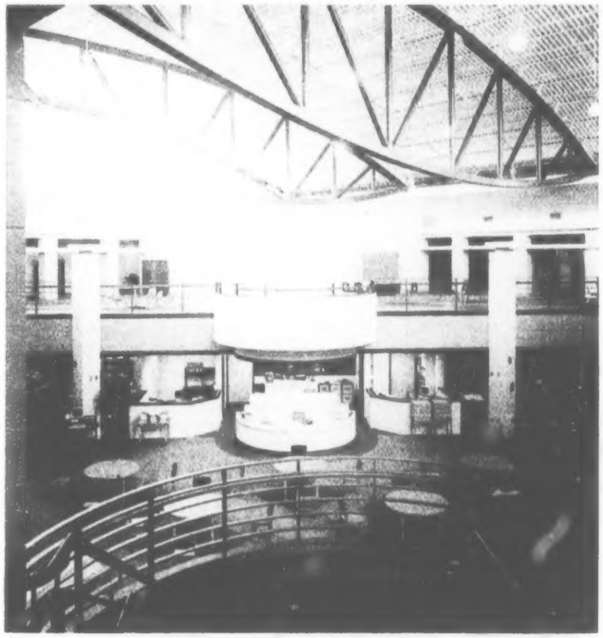
In memory of the school's namesake, Charles A. Lindbergh, the building was designed to capture the excitement of flight. Symbolism of Lindbergh's historic Atlantic crossing is evident in many aspects of the building's design. Colors represent images of earth, air, and sea. The entry is defined by the form of an air traffic control tower. The large curved roof over the media center recalls an aircraft hangar, and the two colors of glass resemble a sky streaked with the tails of modern-day jet aircraft. This building creates an exciting learning environment, encouraging a child's sense of adventure, discovery, and respect of our planet. ■



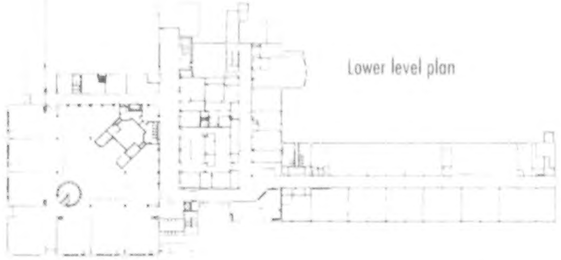
Entrance



Corner "breakout" room



Media center



Lower level plan

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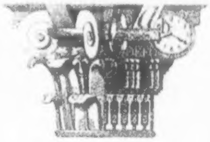
ELEMENTARY SCHOOLS
Project in Progress



LONGFELLOW ELEMENTARY SCHOOL
SHEBOYGAN, WISCONSIN

Bray Associates Architects, Inc.

Bray Associates Architects, Inc.
1807 Erie Avenue
Sheboygan, WI 53081-3076

Geoffrey Bray, AIA
(414) 459-4200

Design team
Geoffrey Bray, AIA
Design Architect

Terry Berkovitz
Project Manager

Jeff Schulz, AIA
Project Architect

Sue Govier
Interior Designer

Client
Sheboygan Area School District
(414) 459-3511

Grade span
K-5

Current building capacity
575

Current building area
90,563 square feet

Total project costs
$6.3 million

Cost per square foot
$70

Space per student
158 square feet

Cost per student
$10,951

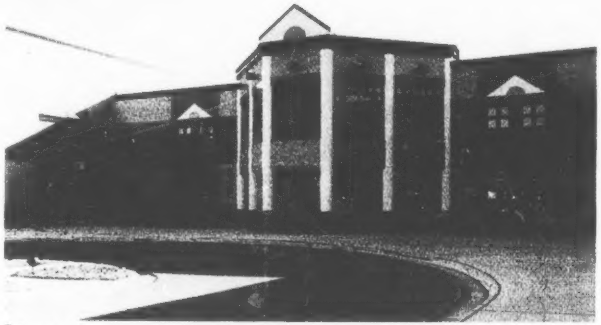
Completion date
April 1992

The new Longfellow School's design blends a contemporary, classical architectural style that is sympathetic to its surroundings yet has the interior flexibility necessary in educational programs.

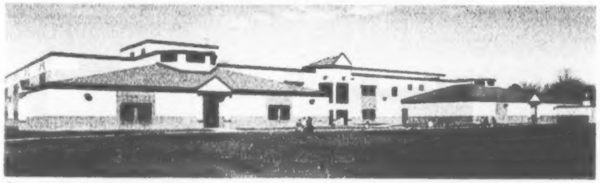
The school was constructed in an older section of the city, and careful consideration was given to planning its design materials. To reduce the sense of masses, vertical design elements were selected; the sloped roof design coincides with the residential qualities. The concrete columns develop a sense of strength and emphasize the main entrances to the school.

The new K-5 school was constructed to accommodate state-of-the-art technology both into the communications system and the physical environment. The communications system provides central video distributing, computer networking to every room, and a computerized telephone/intercom system.

The schools we design will, in essence, provide a safe harbor for today's young people to learn the lessons that will shape their lives. Therefore, this image of strength and stability is crucial to their educational development. ■



Entrance

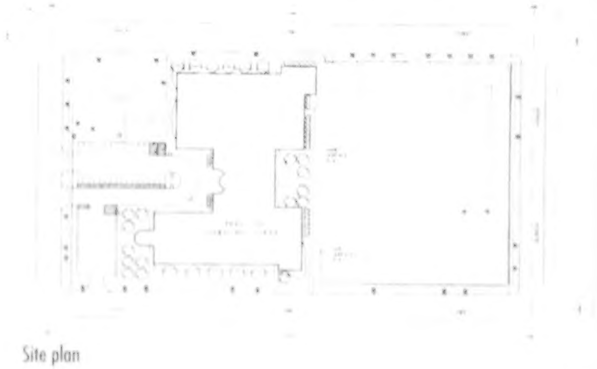


Overview

Cafeteria

Learning materials center

Classroom space



Site plan

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ELEMENTARY SCHOOLS
Project in Progress

NEW KIEL ELEMENTARY SCHOOL KINNELON, NEW JERSEY

Shive/Spinelli/Perantoni & Associates

Shive/Spinelli/Perantoni & Associates
148 West End Avenue
Somerville, NJ 08876

George T. Kopec, AIA
(908) 725-7800

Design team
Richard B. Shive, AIA
Partner-in-Charge

George T. Kopec, AIA
Project Associate

Eric L. Udsen, AIA
Project Architect

Joseph Mannino
Thomas Gilheany, R.A.

Client
Kinnelon Board of Education
(201) 838-1418

Grade span
Pre-K through 2

Current building capacity
415

Current building area
47,804 square feet

Total project costs
$5.5 million

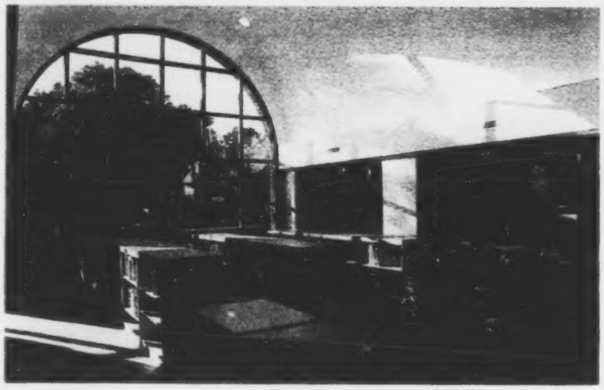
Cost per square foot
$105

Space per student
115 square feet

Cost per student
$13,253

Completion date
September 1995

Main entrance


Media Center

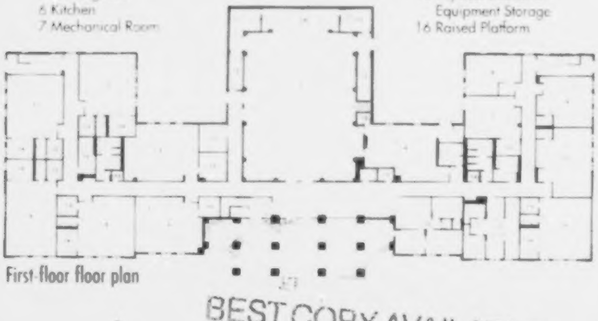
The new Kiel School was dedicated on October 22, 1995. The building is the product of a five-year effort on the part of the community to replace a 72-year-old schoolhouse with an adequate facility to house the district's anticipated Pre-K through Grade 2 school population.

Because this is the first public building that most students will encounter on a regular basis, the design incorporates visual references to residential forms with which children are so familiar, such as pitched roofs, double-hung windows, and warm red brick.

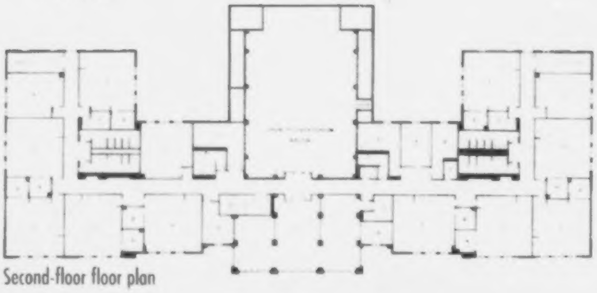
The owner's desire that the media center serve as an integral component of the school educational program led to its placement in a central location. The media center, the focal point of the building, is visible from Kiel Avenue day and night and is easily accessible from all classrooms.

The 24 classrooms are clustered by grade level around the media center and other core facilities so that staff can share materials and resources as well as take advantage of block scheduling. All classrooms are furnished with a

1 Lobby
2 Cafetorium
3 Classroom
4 Art Classroom
5 Kindergarten
6 Kitchen
7 Mechanical Room
8 Faculty Lounge
9 Pre-school Handicap
10 Administrative Suite
11 Nurses Suite
12 Developmental Kindergarten
13 Storage
14 Workroom
15 Physical Education Equipment Storage
16 Raised Platform


First-floor floor plan

1 Media Center
2 Classroom
3 Special Education Classroom
4 Workroom
5 Music Room
6 Small Group Instruction
7 Storage


Second-floor floor plan

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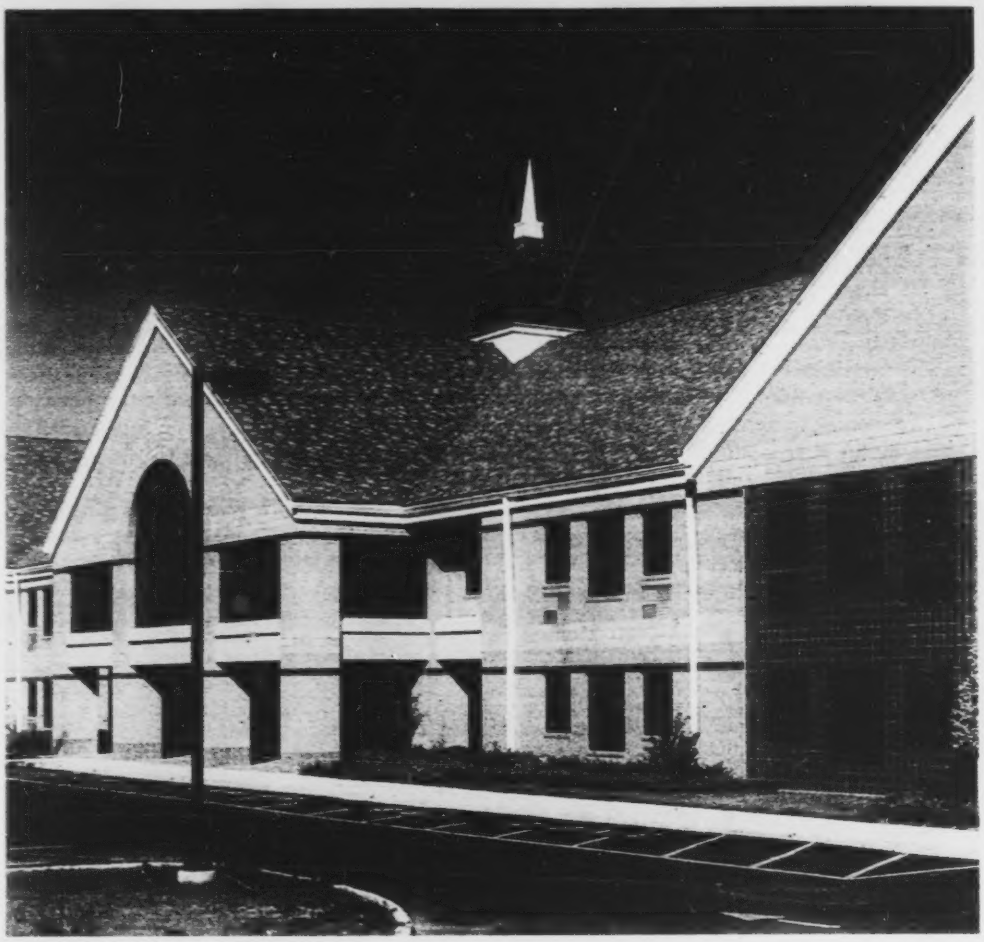
small workroom for use by parent volunteers who assist the teaching staff. Each classroom is also equipped with a small computer area for student instruction on a individual basis.

The building structure is an economical two-story steel frame, with a brick and insulated metal stud skin. Interior partitions are predominately metal stud and painted drywall. This type of construction provides the flexibility needed to adapt the building to programmatic changes. It also allows for future wiring of the building for voice, video, and data quickly and economically.

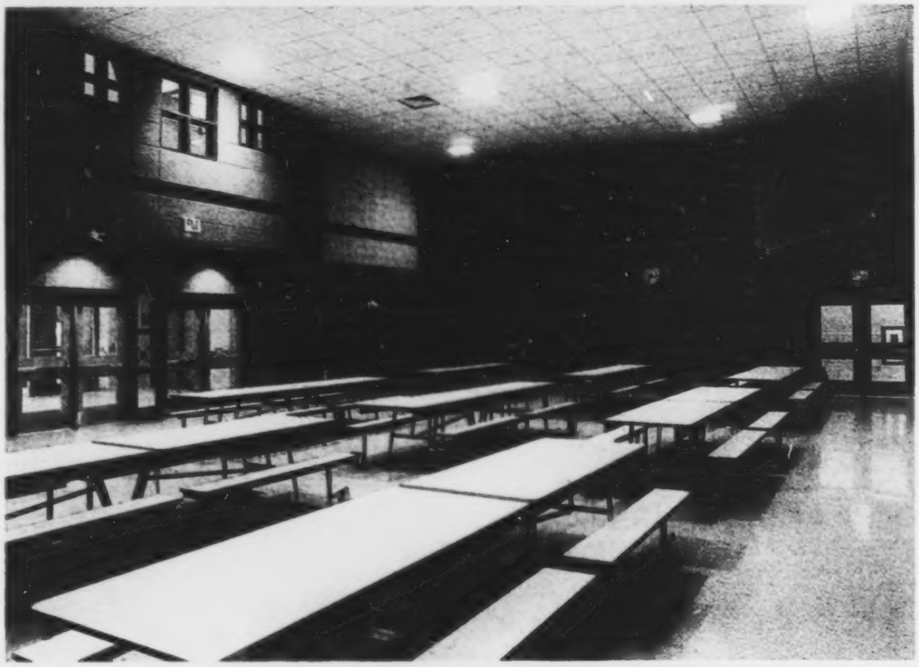
Other finishes include carpeted floors in the first- and second-grade classrooms, media center, and administrative suite. The kindergartens and multipurpose room have vinyl tile floors for ease of maintenance, with ceramic tile floors and wainscoting used in corridors and toilets. Suspended acoustic ceilings are used throughout the facility.

The heating, cooling and ventilating system for each classroom is a hydronic packaged modular unit ventilator with a matching interlocked exhaust unit. A ducted system of packaged rooftop units serves core areas. Each unit provides air conditioning, heating, and 100 percent ventilation capability. An energy-saving night/weekend set-back system monitors the systems.

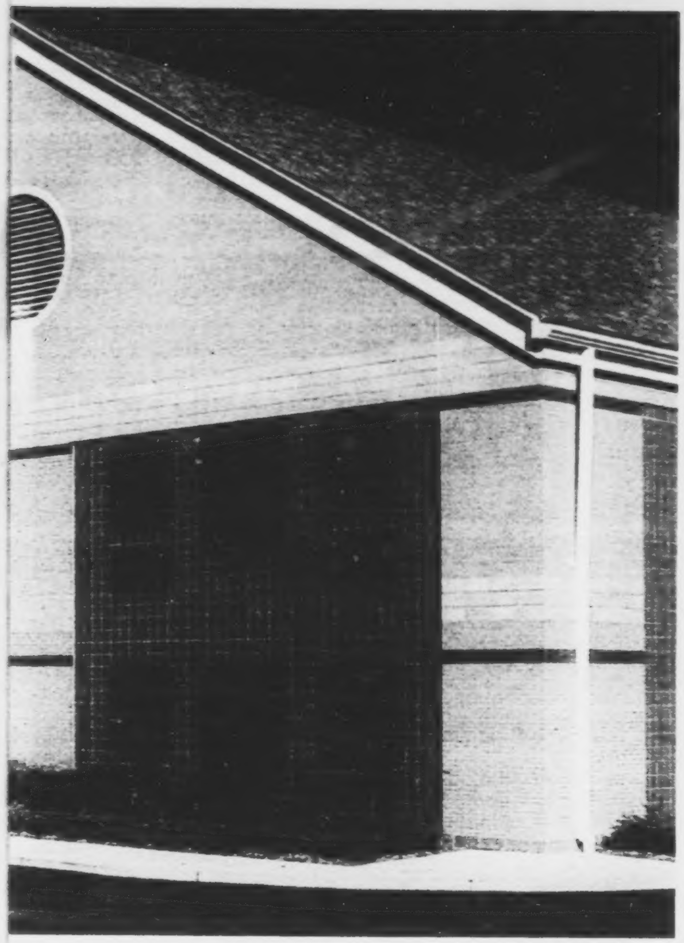
In addition to a code compliant fire-detection system, the facility is fully sprinklered. ■



Overview



Cafetorium



Main entrance

Lobby

First-grade classroom

ELEMENTARY SCHOOLS
New Construction

NORTH VERMILLION ELEMENTARY SCHOOL CAYUGA, INDIANA

The Odle McGuire & Shook Corporation

The Odle McGuire & Shook Corporation
8275 Allison Pointe Trail
Indianapolis, IN 46250
6765 North State Road
Bloomington, IN 47402
Geoffrey D. Odle
(317) 842-0000

Design team
Larry W. Phelps, AIA, CSI
Principal-in-Charge
J. Clifton Huggins, AIA
Project Manager

Client
North Vermillion Community School Corporation
Jeffrey S. Baer, Superintendent
(317) 492-4033

Grade span
K-6

Current building capacity
560

Current building area
81,500 square feet

Total project costs
$8.1 million

Cost per square foot
$99

Space per student
149 square feet

Cost per student
$14,464

Completion date
May 1993

Before the new North Vermillion Elementary School was built, the North Vermillion Community School Corporation had operated its elementary program from three small rural elementary schools built in the early to mid-1900s. In addition to the rising cost of maintaining and operating three separate schools, the school corporation found that new educational programs and advances in technology would require extensive renovations and additions at each of the facilities. After a detailed feasibility study was conducted, the decision was made to merge the three existing facilities into one new K-6 building located next to the junior/senior high school.

As with most school consolidation projects, the school corporation faced the challenge of making students accustomed to a small-school environment feel at home in a large, modern facility. The educational program developed jointly by the administration, faculty, and architects and the need for a small-school feel challenged the designer to integrate technology and innovative education into a "child friendly" facility that would provide instruction tailored to the specific needs of each student.

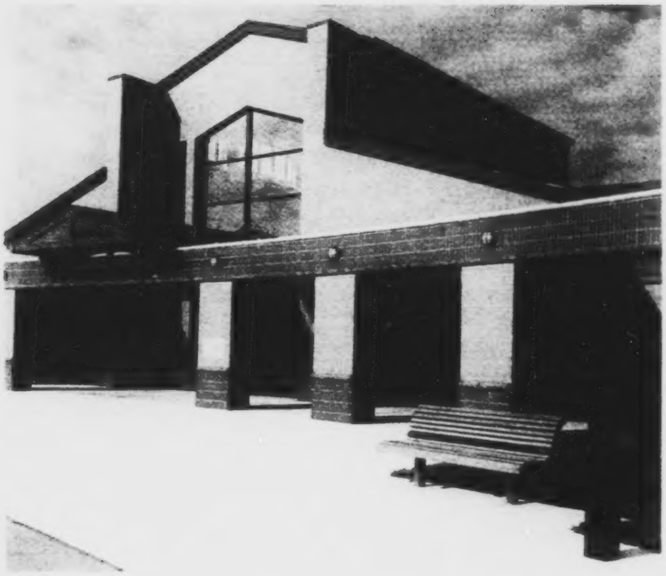
Main entrance

To address the need for the closeness associated with a small-school environment, the designers developed a classroom "cluster" concept for each of the grade levels. That became the basic planning unit for the floor plan layout. Classroom grade groups are clustered around four commons areas to facilitate team teaching and shared lesson planning and to provide grade orientation for the students. The rooms are "child friendly," allowing either cooperative group learning with children at tables or more traditional desk arrangements. Each room contains computer stations, a sink with a drinking fountain, and a bay window with internal blinds for light control.

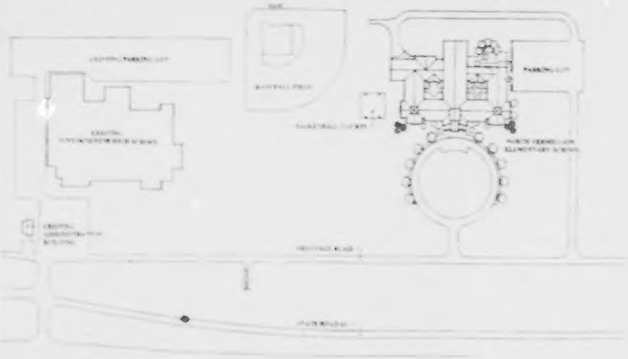
Enrichment areas include art and music rooms and a media center with primary and intermediate grade areas. A large-group room seats 110 students on carpeted tiers overlooking the stage. The stage is designed so that it can

Entry lobby

Corridor commons



Facilities



Site plan

also be used by the cafeteria or gymnasium, depending on the audience size expected.

The triangular-shaped lobby was designed with three large display cases for memorabilia from the three former elementary schools. An upper clerestory provides natural light into the space. Bright colors in the interior design scheme enliven the interior spaces of the school.

With the three former elementary schools in mind, the exterior design of the new elementary school incorporates three vertical elements into its massing through the use of two clerestory towers at the northeast and southwest commons and the clerestory-lit lobby. The exterior brick, which includes two colors and special molded shapes, was manufactured by a local brick company that used original bee-hive kilns built in the late 1800s.

Through a combination of plan layout, brick color, sloped roofs, and clerestory elements, the new North Vermillion Elementary School provides a unique identity that carefully synthesizes instructional offerings with the design of the building. ■

Media center

ELEMENTARY SCHOOLS
New Construction

SUSAN L. PICOTTE SCHOOL
OMAHA, NEBRASKA
Jackson-Jackson & Associates, Inc.

Jackson-Jackson & Associates, Inc.
1905 North 81st Street
Omaha, NE 68114-1567

Jack H. Jackson
(402) 391-3999

Design team
Jack H. Jackson
Project Manager and Design Coordinator

Marvin C. Larson
Project Architect and Construction Administrator

Lamp Rynearson & Associates
Civil Engineers

Farris Engineering, Inc.
Mechanical and Electrical Engineers

Kenneth D. Lathrum & Associates, PC
Structural Engineers

Client
Omaha Public Schools
(402) 557-2200

Grade span
Pre-K through 6

Current building capacity
600

Current building area
64,500 square feet

Total project costs
$4.3 million

Cost per square foot
$67

Space per student
107 square feet

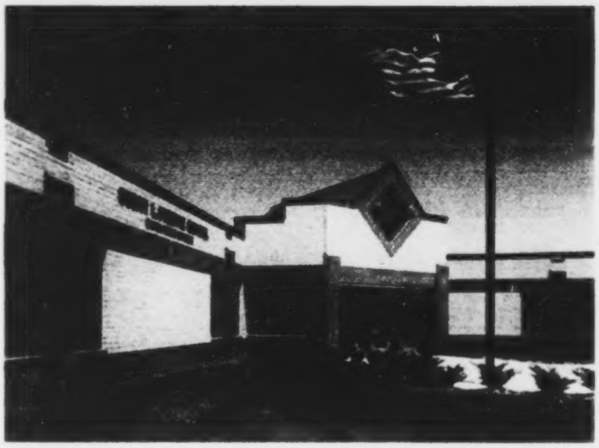
Cost per student
$7,184

Completion date
June 1993

Objectives of the Omaha Public Schools included designing an elementary school for 600 students that could easily be expanded to accommodate an additional 200 students. The school had to be highly energy efficient, have low maintenance characteristics, afford flexibility in use of spaces, and be designed so that eight classrooms could be added to the building in the future, depending upon demand.

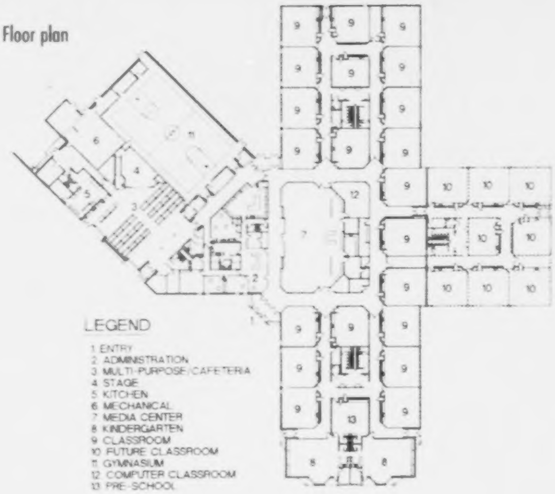
The media center was to serve as the core of the facility, and the administrative areas were to be centrally located for good administrative control. The building was also to be designed so that various areas could be isolated from the rest of the building for after-school activities. This plan eventually served as a prototype scheme for the district, and a second similar school has been constructed.

Economy of structure dictated the use of steel frame post-and-beam construction. Forty-four energy-efficient closed-loop water source heat pumps, supplemented with a boiler and chiller, heat and cool the building. This mechanical system was selected for its ease of maintenance, individual room control, and energy efficiency. Also, the window area in each classroom was reduced to conserve energy. ■



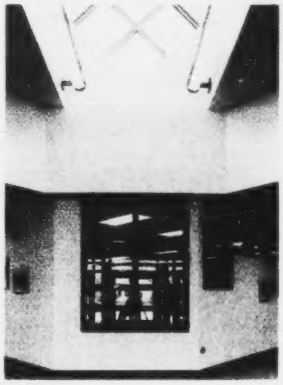
Main entrance

Floor plan



Media center

Corridor at administration



Lobby

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ELEMENTARY SCHOOLS
Project in Progress

ST. REGIS MOHAWK SCHOOL/ AKWESASNE MOHAWK TERRITORY, HOGANSBURG, NY

Collins & Scoville Architects, PC

Collins & Scoville Architects, PC
418 Broadway
Albany, NY 12207-2905

Randolph J. Collins, AIA
(518) 463-8068

Design team
Randolph J. Collins, AIA
Project Architect/Principal-in-Charge

Scott J. Hillje
T. Lucia Nyeu
Peter Wolf
Architectural Design Team

The LA Group, PC
Landscape Architect

Ryan-Biggs Associates, PC
Structural Engineering

Katenies Research & Management Services
Native American Education Specialist

Excel Engineering
Mechanical/Electrical Engineering

Jack Eisenbach Engineering, PC
Hazardous Materials Remediation

Client
New York State Education Department
(518) 474-7770

Grade span
Pre-K through 6

Current building capacity
648

Current building area
59,200 square feet

Building area before addition/renovation
28,700 square feet

Total project costs
$5.3 million

Cost per square foot
$90

Space per student
91 square feet

Cost per student
$8,179

Completion date
September 1996

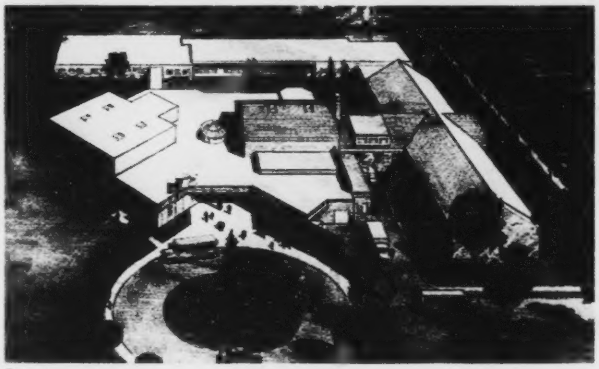
The St. Regis Mohawk School comprised three major structures constructed in 1890, 1935, and 1953, and two minor additions. While the present facility accommodates students in pre-kindergarten through Grade 3, the renovated and expanded facility will accommodate students through Grade 6.

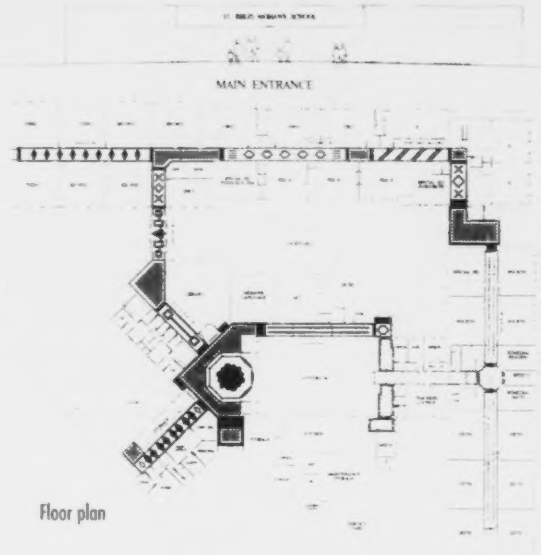
Program requirements include providing educational facilities that meet state education standards; creating an image that identifies the facility as a Mohawk School; designing flexible space for multiple functions because the school also serves as a community center; designing a new main entry to provide a clear point of arrival for students, staff, parents, and community residents; and phasing construction to maintain ongoing operations.

The design of the floor tile in the halls and the brick pattern over the main entry, which were selected with input from teachers and students, incorporate wampum belt designs patterned to tell a story. These will provide a visible source of identity and pride for the students.

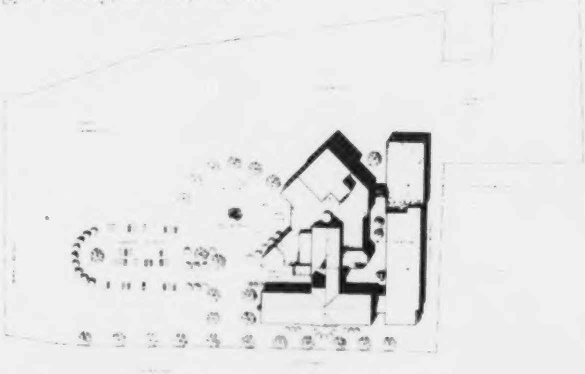
The renovated facility will include eight new classrooms, gym, library, kitchen, and cafeteria plus art, music, and Mohawk language rooms. To accommodate community services, the core facilities are located near the main entry lobby. They are accessible for after-school activities but do not allow access to other areas of the school.

The project is being completed in phases. Phase I was completed and occupied in August 1995, and Phase II will be completed by September 1996. ■


Overview



Floor plan


Site plan

ELEMENTARY SCHOOLS
New Construction

SOUTHERN WELLS ELEMENTARY PONETO, INDIANA

Martin Riley Mock architects/consultants

Martin Riley Mock architects/consultants
222 West Berry Street
Fort Wayne, IN 46802

Jack Daniel, AIA
(219) 422-7994

Design team
Victor Martin, AIA
Principal

John Riley, AIA
Principal

Jack Daniel, AIA
Project Architect

Client
Southern Wells Community Schools
(317) 728-5537

Grade span
K-6

Current building capacity
550

Current building area
83,039 square feet

Total project costs
$6.13 million

Cost per square foot
$74

Space per student
150 square feet

Cost per student
$11,136

Completion date
October 1994

In December of 1992 Southern Wells Community Schools tragically lost its only elementary school to fire. When the smoke cleared, two-thirds of the structure was totally destroyed and the remaining one-third required intense renovation.

The school was a classic open concept design of the early 1970s. In the '70s, a 550-student elementary school required 48,000 square feet; today, 83,000 square feet is required. The staff requested the opportunity to "team teach" yet have the flexibility to work separately. The solution was a design based on the cluster concept—a grouping of classrooms of minimum allowable size surrounding a commons area and accessible by movable partitions.

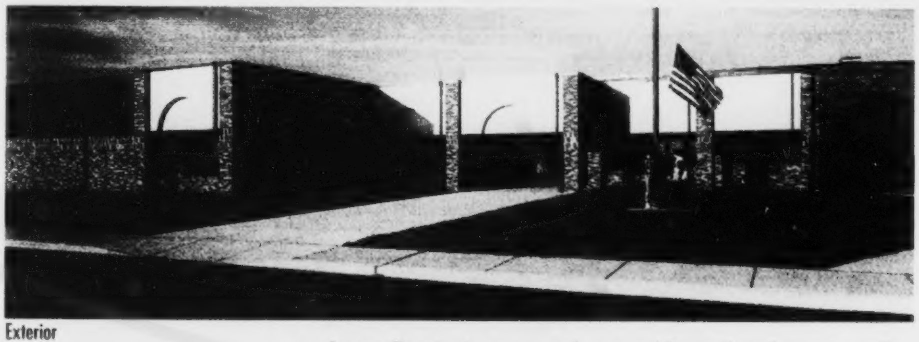
"State of the art" was the focus for the educational technology system. The school corporation is among the smallest in the state, and this system must assist them in acquiring and retaining students. A fully integrated voice/data/media system links all classrooms and special instructional areas.

Natural gas boilers and thermal ice-storage form the heart of the environmental systems and are controlled by computers. The school deemed it necessary for the new facility to have full fire protection capabilities. A well provides water to accommodate the fully sprinkled building and other fire apparatus.

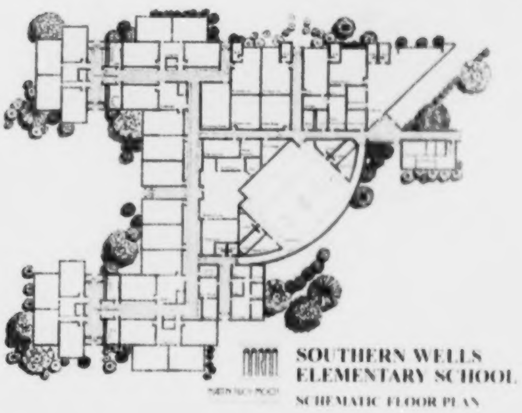
The design was completed in early summer of 1993 and construction began that August. Construction progressed through the winter by using a structural steel frame with metal stud exterior walls and brick to be applied in the spring. The walls were erected on their foundation walls and clad with exterior gypsum and infiltration barrier. The roof was put in place, allowing for temporary heat to be used during placement of concrete slabs and interior masonry walls and for other work that proceeded through the winter.

Without this tragic fire, the Southern Wells community may never have had the opportunity to have a facility that would fully support today's educational program. ■

Classroom



Exterior



ELEMENTARY SCHOOLS
Addition

VAN RENSSELAER ELEMENTARY SCHOOL RENSSELAER, NEW YORK

Dodge Chamberlin Luzine Weber, Architects

Dodge Chamberlin Luzine Weber, Architects
Red Mill Road
Rensselaer, NY 12144

Hana Panek
(518) 463-6611

Design team
Martin Weber, AIA
Principal-in-Charge

Hana Panek, AIA
Project Architect

Snyder Associates
Structural Design

Integrated Building Systems
Mechanical/Electrical Design

Client
Rensselaer City School District
(518) 465-6871

Grade span
K-5

Current building capacity
1,107

Current building area
121,000 square feet

Building area before addition/renovation
65,000 square feet

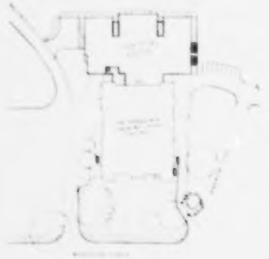
Total project costs
$6.14 million

Cost per square foot
$110

Space per student
109 square feet

Cost per student
$5,546

Completion date
August 1995

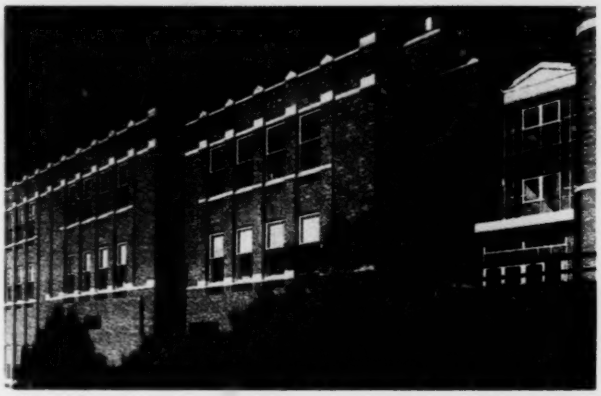


Site plan

The challenge for the 56,000-square-foot addition to the existing 1930 Van Rensselaer Elementary School was to blend harmoniously with the existing architecture, provide accessibility to the existing building, replace an outdated mechanical system, and above all create an environment conducive to learning where children would feel comfortable and secure.

The result is a compact, three-story plan designed to accommodate a future fourth floor. Clusters of classrooms surround a shared commons space, each with its own identity defined by a primary color scheme. The core houses the gymnasium, cafeteria, and library, which has a magnificent view overlooking the Hudson River. The original cafeteria was converted into a new kitchen. The cafeteria and gym are two-story spaces, offset from each other by one floor, into which students on intermediate floors can overlook.

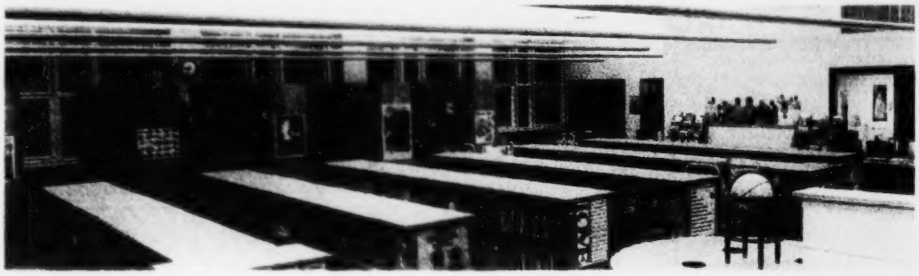
Materials were selected for their durability, ease of maintenance, and scale. The existing steam-heating system was replaced by a hot-water system with sophisticated, computerized temperature controls. Each classroom was wired and designed for one teacher and six student computers. ■



Addition entrance

Cafeteria

Classroom



Library

PASS THE PLATE

By Mark Ward, Sr.

When it's time to make your case at the ballot box, be prepared for planning, polling, and licking lots of envelopes.

Developing a successful strategy to pass a school construction bond was one of the first jobs Robert Monson tackled when he became superintendent of Independent School District 197 of Mendota Heights, Minn. It took him nearly a year of planning, polling, and politicking. But the result was a Yes vote for a critically needed $28.5-million bond—funding voters had previously turned down twice.

Another campaign, two years in the making, also turned the tide in Park City, Utah. Superintendent Donald Fielder not only proposed a $31.5-million bond—three times larger than any issue ever before considered—but he also increased the Yes vote from 50 to 65 percent since the previous referendum in 1991. "We did a lot of planning," he says, "but we also licked a lot of stamps."

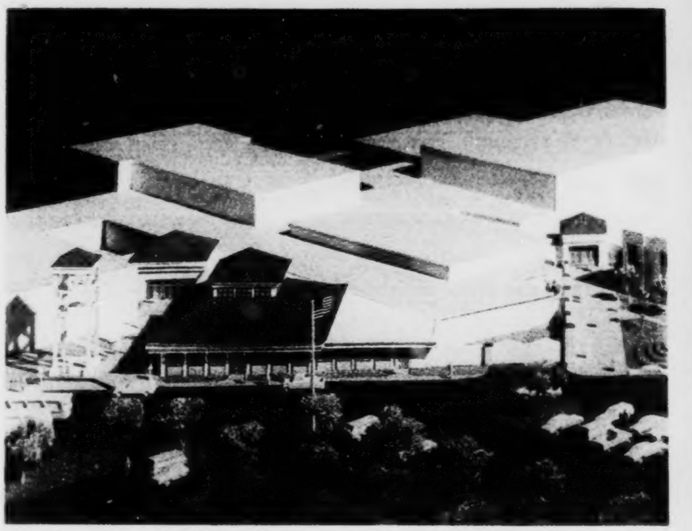
Passing a bond referendum isn't the sure thing it may have been in years past. Skeptical voters are putting school districts to the test before deciding whether to dip further into their pockets. But the experiences of Monson and Fielder suggest that you can still sell today's voters on the value of a vibrant public education system. Here are case studies of how their school districts put politics to work and succeeded in securing funding for their students' futures.

Park City School District, Park City, Utah
Donald Fielder, Superintendent
- 3,100 students
- 1 high school, 1 middle school, 3 elementary schools
- $31.5-million bond issue approved in February 1995

Voters in Park City have a history of favoring school bonds. When Donald Fielder arrived as school superintendent in 1993, citizens had approved their last referendum only two years earlier. Nevertheless, trends were running in the wrong direction.

"The amount of money was very small in the 1991 bond issue, and the vote was less than 51 percent," explains Fielder. "Our school district includes both city and county, and the city proper actually voted No. People here have been grumbling about the fast pace of local development—and some were even saying if school quality was allowed to decrease, it might help slow down the growth."

Park City attracts transplants from as far as California and as close as Salt Lake City, just 30 miles away. School enrollment has seen annual double-digit growth for the past seven years. Yet student test scores are the highest of Utah's 40 school districts, says Fielder, while spending per pupil is comparatively high and student-teacher ratios are kept low at 5-to-1.



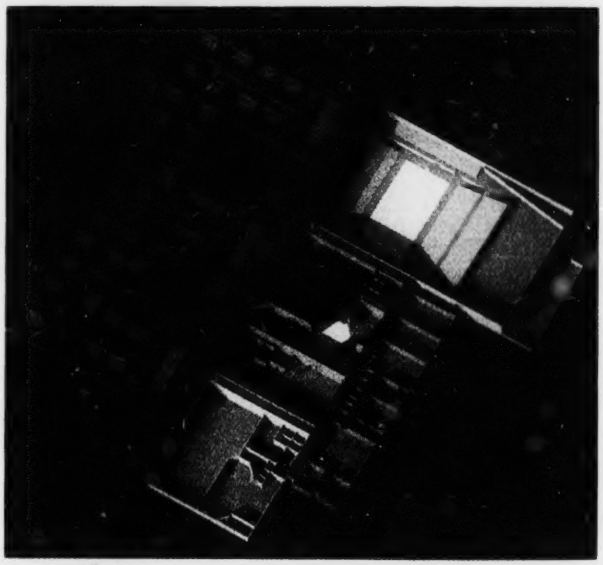
Despite the district's enviable record, Fielder knew conditions could slide unless a long-term solution was found to handle the system's rapid growth. So shortly after his appointment, Fielder launched an ambitious effort to gauge the taxpayers' willingness to support a new construction program.

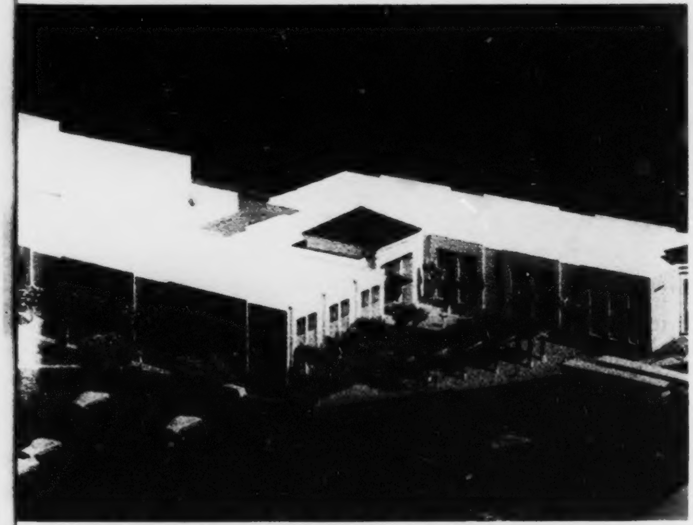
The district mailed a survey to all Park City postal patrons. Response was heavy, and the results were clear. "People were asked if an impact fee to help build schools should be assessed on new houses—and 87 percent said Yes," recalls Fielder. "By a large margin they also said No to any new school bonds unless newcomers were made to pay more."

As a result, the school board worked with city and county officials to enact a school facilities impact fee of $3,400 on new primary residences. The amount was determined by studying various court cases, explains Fielder, and wasn't designed to collect the entire cost of school construction. "We still needed to pass a bond, but at least people would feel newcomers were paying more of their fair share," he remarks. (The Utah legislature has since barred localities from imposing school impact fees, and Park City must stop the assessment by May 1996. City officials hope a compromise will allow exemption of high-growth areas.)

Deciding what and where

The school board turned next to the question of what facilities should be built. Fielder and the board developed a 20-year capi-





tal improvement plan that included a new middle school and an expanded high school. "But the key to the politics is deciding where to build, especially in a district like ours, where we cover both city and county," says Fielder.

To encourage citizen involvement, the school board scheduled public hearings and presented four different construction options. The district also mailed surveys to taxpayers and asked what features—an auditorium or a swimming pool, for example—should be incorporated into the design. The process culminated in an "electronic town hall" aired live on public radio; callers questioned the architect and project consultant on issues ranging from traffic and parking to square-footage costs. "Involvement and public feedback are crucial," advises Fielder, whose district allowed five months for hearings and surveys. Thanks to advance planning, the designs were finalized five months before the vote, leaving ample time to build a campaign organization and recruit volunteers. The Bond Promotion Committee included key community leaders, such as school board members, administrators, and officers of parent-teacher groups and education associations.

A steering committee met weekly to plot strategies and develop a two-pronged effort to turn out favorable voters. Each school employee was asked to recruit five Yes voters—particularly those with no children in school—who in turn would recruit another five supporters. A get-out-the-vote committee mounted a parallel effort aimed at calling every school parent in Park City. "In a small community, the issue is decided by turning out your positive votes rather than by a negative strategy," believes Fielder.

A finance committee was formed to raise funds, mostly from local developers, because state law bars use of public monies for electioneering. In addition, a publicity committee arranged speaking engagements with Park City civic groups. To ensure a consistent message, Fielder made all the presentations, accompanied by a school board member. And he always took along a scale model of the proposed high school expansion.

To make the message clear to voters, Fielder employed two simple strategies. "Instead of dwelling on the total cost, we broke it down into what the owner of a $100,000 home would pay per day for better schools. Seen that way, it only amounts to the cost of a soda or a bagel with cream cheese," he says.

But Fielder also emphasized the urgency of the situation. If the bond failed, he told voters, then the high school would be forced to use trailers as classrooms to accommodate the projected increase in enrollment. "They would either have to pay now or pay later," he reasoned.

15 STEPS TO SAFE PASSAGE

GETTING STARTED

1 Begin early. Allow enough time for gathering information, soliciting public input, and waging the campaign. Don't let the urgency of your needs push you into making a hastily conceived proposal.

2 Take the public's pulse. As you gather information, find out what voters are thinking. Consider a mail survey to all postal patrons asking what they think about school needs and spending.

3 Hold hearings. Public input will improve your bond proposal. Voters who have their say and who believe their opinions matter are more likely to be supportive.

4 Think location, location, location. Voters don't want the cheapest alternative but the best value. They consider where proposed improvements will be made to be as important as what improvements are funded.

GETTING ORGANIZED

5 Let volunteers take the lead. Make the campaign a grass-roots effort. Voters are turned off when they believe politicians or vested interests are pulling the strings. Plus, giving supporters a sense of ownership in the campaign will motivate greater involvement.

6 Create a central committee. The campaign requires a smaller executive body with the responsibility and authority to make sure things get done.

7 Make opportunities for involvement. Find ways for volunteers to be active in meaningful work. For example, set up committees for raising campaign funds, getting out the vote, handling advertising and publicity, and arranging speaking engagements.

GETTING OUT THE MESSAGE

8 Ensure a consistent and united message. Limit the number of people taking high-profile roles as public speakers. Often the superintendent is the only school official designated by the campaign to speak in public. School board members, while remaining in the background, must nevertheless be united lest any divisions undermine voter support.

9 Make your message clear and simple. Give the voters one or two major themes that are compelling and easily understood. For example, emphasize the urgent need for the proposed improvements or the excellent educational value to the community.

10 Use every available medium. Mail campaign brochures and letter appeals. Set up a telephone bank and an information hotline. Take out newspaper advertisements, and encourage supporters to write letters to the editor. Obtain interviews on local radio and television stations. Arrange speaking engagements with community and civic groups.

GETTING OUT THE VOTE

11 Compile a voter list and identify supporters. The goal is to build a reliable list of Yes voters.

12 Deny opportunities for opponents. A short campaign, perhaps six to eight weeks, offers enough time to inform voters and motivate supporters but doesn't give formal opposition time to coalesce.

13 Work the phones. Your phone bank operation should call every identified supporter on the list the night before the voting.

14 Watch the polls. Provide volunteers with a list of identified Yes voters and send them to each polling site. Supporters who don't show up by about 5 p.m. should receive a reminder call.

15 Thank your committees and volunteers. Not only is it polite, but you'll probably need their support again some day.—M.W.

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Quick, yet thorough

"We decided on a short campaign so there wouldn't be time for a formal opposition group to form," adds Fielder. Here are the steps the district took to ensure passage:

- During the six weeks between Christmas and the vote in mid-February 1995, the bond committee mailed three publications to every household, including an extensive question-and-answer booklet. Two weeks before the vote a brochure was mailed out, followed by a short fact sheet just before voting day.
- A committee of more than 100 prominent citizens, including the mayor and most city council members and county commissioners, took out a series of full-page advertisements in the Park City newspaper during the four weeks leading up to the vote. Parents were asked to write letters to the editor, dozens of which appeared in the newspaper.
- A hotline was set up so citizens could call the bond committee with any questions.
- A local real estate agency allowed volunteers to use its telephone banks so that all Yes voters identified by the committee could be called the night before the vote. On election day, watchers—armed with the committee's voter list—were assigned to all polling sites. Supporters who had not turned out by 5 p.m. were called and reminded.

When the ballots were counted, the school bond had passed by a 2-to-1 margin. A 60-percent majority also approved a separate levy of $4.5 million for technology, such as classroom computers. No formal opposition materialized, except for a taxpayers group that stayed on the sidelines until a few days before the vote. "People are still willing to invest in the future of their schools," concludes Fielder, "but you've got to make a case that connects with their concerns."

Independent School District 197
Mendota Heights, Minnesota

Robert Monson, Superintendent

- 5,000 students
- 1 high school, 1 middle school, 5 elementary schools
- $28.5 million bond issue approved in March 1995

The winning margin was just 144 votes out of 8,500 ballots cast. But even that razor-thin victory represented a big achievement for a bond issue that, just two years earlier, had been decisively defeated in two attempts.

What made the third time the charm? "We broke all the rules," says Robert Monson. Not by political chicanery, the superintendent explains, but by doing what experts might consider crazy. "In essence, the issue passed because we increased the bond amount and built two new schools instead of one," he says.

Strange as it may sound, the move made political sense in District 197. In 1993, when the school board had proposed a $19 million bond to construct a desperately needed middle school, citizens fought over the proposed site. But in 1995, with the proposal of a $28.5 million bond to build two schools—one at each end of the district—taxpayers districtwide were satisfied.

"The 1993 proposal seemed the most logical thing to do, putting the new school in the geographic center of the district," Monson says. "However, that meant tearing down the existing middle school—which had been built in the original northern suburbs in 1960—and constructing the new school in the newer suburbs to the south. Voters in the older suburbs thought their community was being slighted and turned out in record numbers to defeat the school bond."

On the other hand, the location of the existing middle school was a real handicap for the school district. For example, travel time for students in the newer suburbs totaled nearly 45 minutes. Because Minnesota has an open-enrollment policy, District 197 was losing students—and student funds—as parents opted for schools in adjacent districts.

Addressing the discontent

When Monson became superintendent in July 1994, matters remained unresolved. "The fire marshal came to my office and reminded me that the old middle school had been condemned the year before," recalls Monson, who had 10 months to come up with a plan.

Having relocated from Massachusetts, where localities use the town-meeting form of government, Monson decided to hold a series of four public hearings around the district. He discovered that residents appreciated the chance to speak out: The 1993 bond referendum had appeared on the ballot with no public input, and that fact had become a source of discontent in the voting.

"In the previous bond issues the school leadership thought people just wanted the cheapest alternative," Monson says. "But when we held hearings, we found the desire of the public was to build two middle schools—one in the historic core of West St. Paul to the north and one in Eagan, the anchor of the newer suburbs to the south."

Monson also suggested that citizens themselves, rather than school board members, act as the prime movers in the campaign. More than 400 volunteers joined United Communities for Our Schools, putting together fliers, mailings, and phone banks. A consultant was hired to compile a list of all 2,400 registered voters, and then volunteers called each one personally. Undecided voters were called a second time, sent an information packet, and called again.

The committee asked Monson and his assistant superintendent to assume high-profile roles in the campaign, chiefly through speaking engagements before local citizen groups. School board members, by contrast, offered to stay in the background to avoid any lingering resentments from the previously defeated school bond votes.

In the end, District 197 became one of only two school districts in the state—out of 103—to approve a school bond last spring. Monson notes, "We serve seven municipalities, so it's easy to become divided. What brings everyone together is not always going for the cheapest solution but the one that will best meet the needs of the community." ■

Mark Ward, Sr. *is a freelance writer in Montclair, Va.*

K-8
Addition

AVILLA ELEMENTARY/MIDDLE SCHOOL AVILLA, INDIANA

E.I.Brown

E.I.Brown
950 North Meridian Street,
Suite 200
Indianapolis, IN 46204
Wendell Adams, NCARB
(317) 237-7000

Design team
Dave Blanton, AIA
Principal-in-Charge
Wendell Adams, NCARB
Project Manager/Architect
Lisa Paul, NCIDQ
Interior Designer

Client
East Noble School Corporation
(219) 347-2502

Grade span
K-8

Current building capacity
540

Current building area
109,112 square feet

Total project costs
$9.37 million

Cost per square foot
$96

Space per student
202 square feet

Cost per student
$17,349

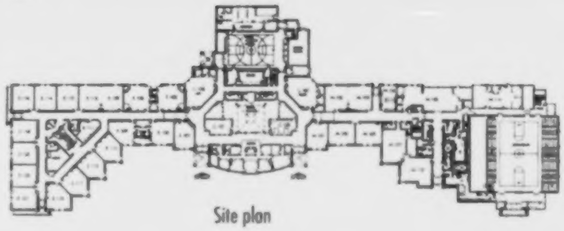
Completion date
August 1995

Avilla Elementary/Middle School confronted some serious problems, including educational, ADA, and life-safety code violations, as well as overcrowding. Despite site constraints and the required reuse of the existing gym, the design team successfully created a well-organized plan that met the functional needs and goals of the client. Additionally, the project was phased to allow for school to remain in session during construction.

The elementary school and the middle school each have their own wing and entrances. Centrally located common areas include the administration center, media center, multipurpose room, art room, and music room.

Technology is a key element—a cable network distribution plan allows for extensive flexibility and growth. Major components include: a technology productions and editing area; a computer classroom; and an industrial technology classroom and life-skills learning laboratory.

Entrance


Site plan

The school maintains a sense of history through the use of old cut stone pieces. These pieces were saved from the demolished portions of the original building and are now a part of the new multipurpose area. The new Avilla Elementary/Middle School definitely fosters a sense of pride for students and teachers. ■

Administrative offices

Classroom

Media center

K-8
New Construction

KYRENE de LOS CERRITOS ELEMENTARY/ ALTADENA MIDDLE SCHOOL, PHOENIX, ARIZONA

The Orcutt/Winslow Partnership

The Orcutt/Winslow Partnership
1130 North Second Street
Phoenix, AZ 85004

Herman Orcutt
(602) 257-1764

Design team
Herman Orcutt
Principal-in-Charge

Joseph Bartlett
Team Leader

Steve Pattyn
Project Architect

Nanci Pattyn
Interior Design

Client
Kyrene School District
(602) 496-4600

Grade span
K-8

Current building capacity
2,520

Current building area
283,300 square feet

Total project costs
$19.1 million

Cost per square foot
$67

Space per student
112 square feet

Cost per student
$7,569

Completion date
June 1995

The campus design is a direct result of the district's vision of the ideal elementary/middle school experience. To foster an easier transition between the elementary/middle school experience and to encourage the mentoring process, The Orcutt/Winslow Partnership blended components of the existing elementary/middle school prototypes.

The media centers were designed into one, larger, central media center serving both campuses and the community. The faculty lounge, library space, and workroom are shared by both staffs to foster communication and teamwork.

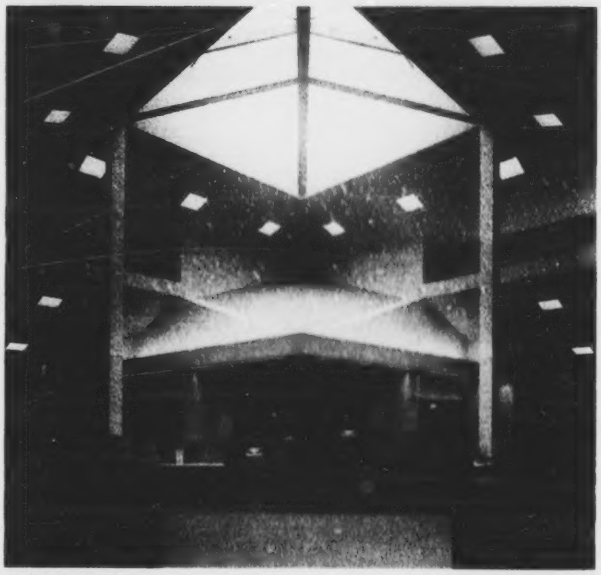
The elementary design incorporates a pod with six classrooms around a shared workspace for group/individual study. The middle school demonstrates the "school within a school" concept, with two arenas making up a class level while allowing for smaller team teaching within each arena.

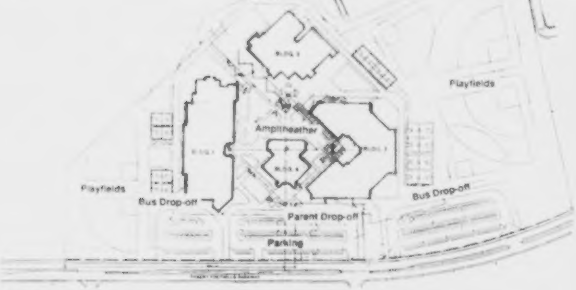
Each building has a conduit communications raceway system that feeds into the media center. This houses the intercom and interactive instructional television and computer networks that unite the campus. Each classroom has six data jacks for connection to the system.

The entire campus is connected by a series of covered walkways that protect against weather. The colors of the masonry and the sloped metal canopy blend into the natural landscape. ■

Overview

Courtyard


Media center



Site plan

K-8
Addition/Renovation

LINCOLNWOOD SCHOOL DISTRICT 74 LINCOLNWOOD, ILLINOIS

GreenAssociates Architects, Inc.

GreenAssociates Architects, Inc.
832 Custer Avenue
Evanston, IL 60202

Carol Donovan Pugh, AIA
(347) 328-0852

Design team
Raymond J. Green, AIA
Principal-in-Charge

Carole Donovan Pugh, AIA
Project Manager

David Wickwire
Project Architect

Frank Michalski, AIA
Project Architect

David Forte, AIA
Project Architect

Myn Ancheta-Mayer
Debbie Antes
Tom Tietz

Client
Lincolnwood School District 74
(347) 675-8234

Grade span
Todd Hall K–2
Rutledge Hall 3–5
Lincoln Hall 6–8

Current building capacity
560; 500; 550

Current building area
60,475; 67,780; 110,000 square feet

Building area before addition/renovation
37,800; 46,800; 100,300 square feet

Total project costs
$5.35 million; $5 million; $6 million

Cost per square foot
$88; $74; $55

Space per student
108; 135; 200 square feet

Cost per student
$9,552; $10,045; $10,960

Completion date
February 1995

Lincolnwood School District 74 took a hard look at its three facilities in 1991 and has completed a four-year, $16.4-million investment in the future of its students. GreenAssociates Architects helped plan, design, and implement the district's dreams and goals for years to come.

Issues such as program advancements, changing enrollment, traffic congestion, 40-year-old building systems, and school grade-level realignments—some of which were magnified because all three buildings were on a single-campus—were all reviewed.

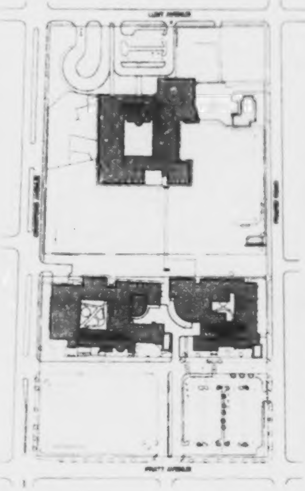
Building committees comprised of administrators and teachers provided the educational program knowledge, GreenAssociates brought the design and technical background, and the school board provided the oversight. Together the team produced a facilities improvement study that served as a blueprint for implementing additions and renovations at each building.

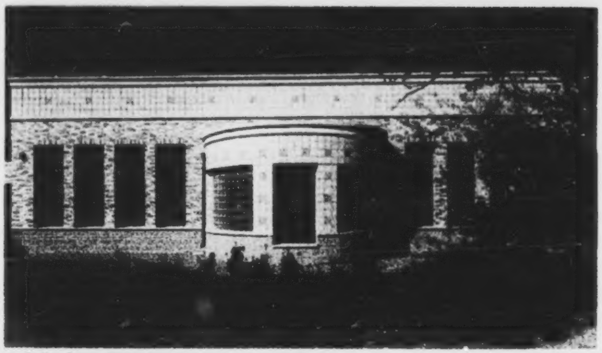
GreenAssociates assisted District 74 in passing a $7.7-million referendum and securing $8.7 million in life-safety funding.

Renovations at all three schools included a campus-wide heating system, site circulation, and parking improvements—including relocation of school entrances, electrical upgrades, room finishes, and handicapped accessibility improvements. New construction included classrooms, learning centers, and gymnasiums with technology networks throughout. ■

Rutledge Hall—entry arch

Todd learning center


Site plan


Rutledge learning center

K-8
New Construction

ARCHITECTURE AWARD WINNER

SOUTH LAWRENCE EAST SCHOOL LAWRENCE, MASSACHUSETTS

Earl R. Flansburgh + Associates, Inc.

Earl R. Flansburgh + Associates, Inc.
77 North Washington Street
Boston, MA 02114

Earl R. Flansburgh, FAIA
(617) 367-3970

Design team
Earl R. Flansburgh, FAIA
Principal-in-Charge

Alan S. Ross, AIA
Associate-in-Charge

Christopher A. Sgarzi, AIA
Project Manager

Jeffrey Fleming, AIA
David Hocker, AIA
Jeanne Kuespert, AIA

Client
Lawrence School Department
(508) 975-5900

Grade span
K-8

Current building capacity
1,480

Current building area
215,000 square feet

Total project costs
$27.6 million

Cost per square foot
$96

Space per student
145 square feet

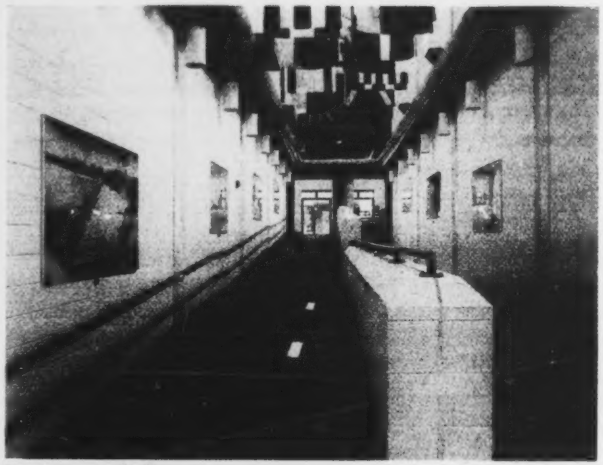
Cost per student
$14,006

Completion date
June 1995

The South Lawrence East School is designed to take advantage of a difficult site, as well as to accommodate a primary/middle school curriculum. The school represents the dedication of the city to provide quality educational facilities for its children and stands as a beacon for the resurgence of this downtrodden industrial city.

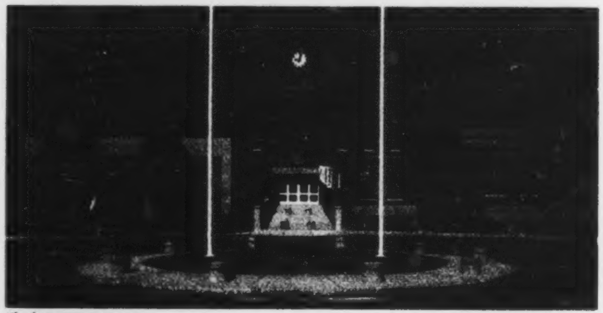
The overall form and massing of the school recalls the late 19th century mills that formed the core of historic Lawrence, while the facade responds to the residential scale of the school's neighborhood. Focal points of the building include a clock tower and a two-story ramped gallery, which connects the educational wing of the school with the community wing and displays flags of the nations the students have immigrated from.

The community wing contains the large and small gymnasiums, an auditorium, the library, and a cafeteria that can be isolated from the rest of the school for after-hours use. Entrances and play areas are separated and scaled to kindergarten, primary, and middle school students.

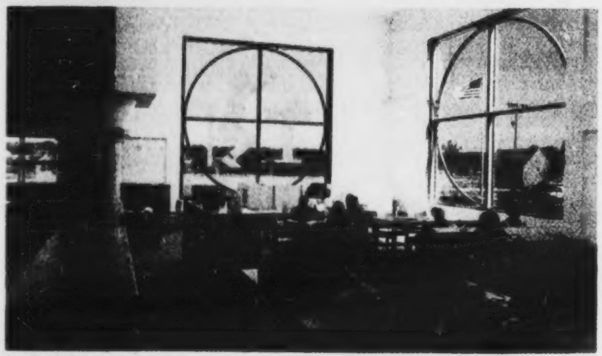


Two-story ramped gallery

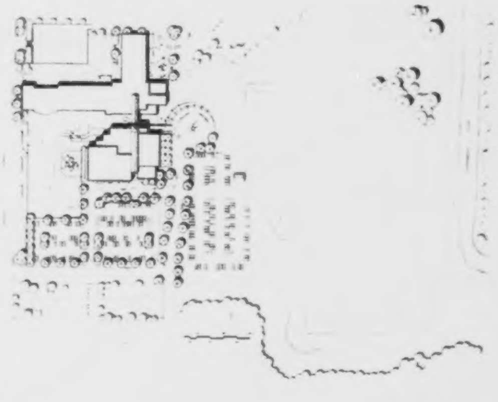
This three-story, 215,000-square-foot facility accommodates 1,480 students in grades Pre-K through Grade 8. The program includes an elementary curriculum for Grades Pre-K through 4 and a middle school for Grades 5 through 8 with shared core space, a 350-seat auditorium, an instructional media center, a cafeteria, a gymnasium, an activity room, four computer labs, and administrative offices. ■



Clock tower entrance



Media center



Site plan

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MAKING SCHOOLS ACCESSIBLE

By Tracy Fellin Savidge

There's no clear path to building for ADA compliance—but here are basic guidelines and resources that can help.

The passage of the 1990 Americans with Disabilities Act (ADA) sent public school districts scrambling to make sure that their facilities complied with the law. Since then, districts planning new construction projects have paid careful attention to ADA mandates. However, as most school officials who have attempted to decipher the ADA have discovered, there is no cut-and-dry prescription for compliance.

According to Kathy Gips, director of training for Adaptive Environments, a Boston-based nonprofit group involved in accessibility issues, most schools fall "somewhere between having to do nothing and having to do everything" to meet ADA requirements.

"There's a fair amount of confusion. Some school [officials] throw up their hands and say they'll just bring their [existing facilities] up to new-construction standards," she continues. "That's fine if you want to spend the money, but it's not necessary."

"The ADA has challenged people to think of new ways of solving problems," notes Raymond Lin, technical assistance and training specialist for the Mid-Atlantic ADA Information Center, Arlington, Va. He offers this example: To be accessible, a water fountain doesn't necessarily have to be lower; providing cups within reach of disabled people may do the trick. However, if the cup dispenser is not kept filled, then the fountain is not accessible.

Nothing is concrete

When approaching the issue of ADA compliance, keep two key points in mind. First, the ADA is a civil rights law, continuously being redefined by the courts.

"A lot of times, people get caught up in the architectural aspect of the ADA," says Lin. "But it is civil rights legislation, not a building code....It's all about integration....There's going to be a lot of litigation before we have all the answers."

Nancy Richardson, project manager for the National Access for Public Schools Project, a joint venture of the U.S. Department of Education (ED) and Adaptive Environments, says school districts tend to overemphasize classroom accessibility, when the law focuses on *program* accessibility.

Second, remember that many of the ADA requirements that

IT'S THE LAW

Congress passed the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 to protect the rights of individuals with disabilities in programs and activities that receive or benefit from federal financial assistance. ADA affects more than the children who attend a public school; it mandates access for children, parents, staff, and the community who use these facilities.

For existing facilities—those built, or for which construction commenced, before June 3, 1977—both Title II of the ADA and Section 504 of the 1973 Rehabilitation Act require that programs and activities are readily accessible to and usable by individuals with disabilities. Neither regulation—and this is key—requires public entities and recipients of federal funds to make all existing facilities or every part of them accessible to and usable by individuals with disabilities if the activity or program as a whole is accessible.

This means that you can achieve program accessibility for existing facilities by making nonstructural changes, such as in the design of equipment, reassignment of classes or other services to accessible buildings, assignment of aides to beneficiaries, home visits, or delivery of services at alternate sites that are accessible. Structural changes are required only when there is no other feasible way to make the program accessible.

In general, requirements for existing facilities under Section 504 and Title II are similar; however, depending on the date of construction, some buildings may be considered existing facilities for purposes of Title II but may constitute new construction under Section 504.

The U.S. Department of Education's Office of Civil Rights handles schools' compliance with Section 504 and Title II. It also investigates complaints and conducts compliance reviews when there is evidence that a district may be discriminating.—T.F.S.

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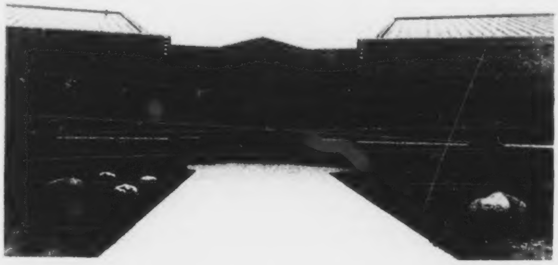
pertain to public schools are spelled out by an earlier law—the Rehabilitation Act of 1973 (Section 504), which went into effect on June 3, 1977. (See sidebar.) Although Title II of the ADA has specific mandates for public entities, in general, ADA was passed to bring private facilities up to the accessibility standards required of public facilities through the 1973 Rehabilitation Act.



"The ADA has provided school districts with something of a revelation," says Albert C. Eisenberg, director of federal legislative affairs for the American Institute of Architects, Washington, D.C. "They're learning that their buildings and programs were to be compliant since [the 1970s]. ADA has introduced a new awareness of these issues." ADA requirements, he notes, span "the parking lot to the bathroom . . . The question is, 'How much access do we have to provide?' "

And, where public schools are concerned, the issue is muddied by the fact that there are no specific construction guidelines for schools. "The standards are written with adults in mind, so some might not be appropriate for schools," notes David Berkowitz, senior program analyst in the Elementary and Secondary Education Policy Division of ED.

New construction must comply with either the Uniform Federal Accessibility Standards (UFAS) or the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG). With amendments to Title II expected within the next six months, ED's Berkowitz recommends that schools build their facilities for compliance with ADAAG.

Questions of design

A few of the significant concerns in the design of public schools, according to Gips, are:

■ **Creating designs that are appropriate for children, especially in elementary schools.** The ADA has no specific stan-

HERE'S HELP

If you're planning a construction or renovation project for your school and need help regarding compliance with the ADA, you may want to consult one of the following resources:

ORGANIZATIONS

■ **ADA Technical Assistance Centers: (800) 949-4232**—This number will connect you to one of 10 regional ADA Information Centers, which are funded by the National Institute on Disability and Rehabilitation Research under the U.S. Department of Education. The center can offer technical assistance over the phone on everything from ADA requirements to disability-related employment questions and also offers numerous low-cost publications.

■ **Adaptive Environments Center: (800) 893-1225**—This Boston-based group is involved in the National Access for Public Schools Project, a three-year project funded by a Department of Education grant to provide training, outreach, and technical assistance to public school administrators to help them comply with the ADA. It offers numerous ADA-related materials and resources and has a Schools' Hotline: (800) 893-1225, ext. 28.

■ **U.S. Access Board: (800) 872-2253**—This federal agency develops the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS), provides technical assistance and information on the architectural requirements of the ADA, and offers numerous free publications.

PUBLICATIONS

■ **Compliance with the Americans with Disabilities Act: A Self-Evaluation Guide for Public Elementary and Secondary Schools**—Developed by the Department of Education, this guide reflects the interpretations of the department's Office for Civil Rights, to which the Department of Justice has delegated the responsibility of ensuring that public school systems comply with Title II of the ADA. It has guidelines and worksheets to enable schools to conduct self-evaluations.

One free copy is available to each school district through the ADA Technical Assistance Center; call (800) 949-4232. Additional copies are available for $21 each (shipping included) through the U.S. Government Printing Office, Washington, DC 20402; call (202) 512-1800 and request stock number 065-000-00774-6.

■ **Play for All Guidelines: Planning, Design and Management of Outdoor Play Settings for All Children, 2nd edition**—Addresses play-area issues ranging from safety and risk management to accessibility and integration. Available for $39.95 from MIG Communications, 1802 Fifth St., Berkeley, CA 94710; call (800) 790-8444.

■ **The 1995 Accessible Building Product Guide**—Includes more than 650 product listings, with descriptions and manufacturers' names and addresses. Available from John Wiley & Sons, Inc., 605 Third Ave., New York, NY 10158-0012; call (212) 850-6000.

■ **Recommendations for Accessibility Standards for Children's Environments**—Prepared by the Center for Accessible Housing for the U.S. Access Board, these recommendations can be used in place of adult dimensions in places primarily for use by children. Available for $52 + $6 handling (print) or $19.50 + $4 handling (microfiche) from the National Technical Information Services (NTIS); call (703) 487-4650 and request publication PB93-208676. The actual design recommendations are available for $12 from the Center for Accessible Housing at (919) 515-3082 and on the Internet on the ADA and Public Schools gopher at gopher.aces.k12.ct.us.

■ **The ADA Information File**—Distributed by the U.S. Department of Justice's Disability Rights Section, it includes comprehensive information on the ADA and is available at 15,000 local libraries across the country, usually at the reference desk. The file contains more than 35 documents, including materials on the law and regulations and user-friendly publications.—T.F.S.

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dards for public schools but allows for "equivalent facilitation," which should be taken into consideration when designing for schools. "If you've ever seen a child struggling with an adult-sized bathroom, you know what I'm talking about," she says, noting that handicapped bathrooms, water fountains, and counter tops are the areas most likely to be built to adult-sized standards instead of an equivalent that would be appropriate for children.

- **Making playgrounds fully accessible.** Although there are requirements for access—which relates to the path of travel—no specific guidelines exist for playground equipment.
- **Including signage as part of access.** Signage must be designed to meet the needs of blind or low-vision people, including using Braille, contrasting colors, and large print. Additionally, there should be a visual warning system for emergencies that hearing-impaired or deaf people can comprehend.

If you're planning a new construction project for your school district, AIA's Eisenberg suggests taking a team approach. Your team should include school board members, accountants, contractors, architects, and legal counsel—all of whom should be well-versed on the ADA. The architect's job, he says, is to produce creative expressions of your ideas, while the contractors determine who can actually produce the job, the accountant determines its economic feasibility, and the attorney reviews it for compliance with the ADA.

Of course, even with a top-notch team in place, questions about your facility's compliance with the ADA are bound to arise. So consider tapping into the lengthy list of services and publications (see sidebar) that can assist you on everything from hiring ADA consultants to interpreting the law. ■

Tracy Fellin Savidge *is a freelance writer in Lancaster, Penn.*

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FAX: (513) 381-5121

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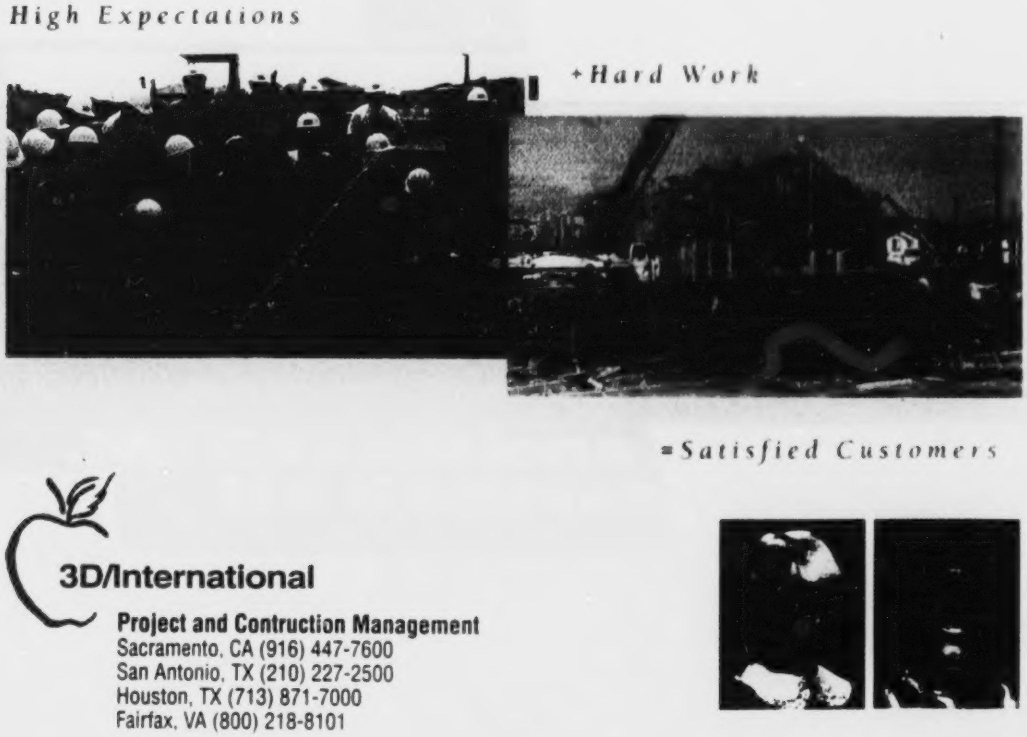
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MIDDLE SCHOOLS
New Construction

BLACK HAWK MIDDLE SCHOOL EAGAN, MINNESOTA

Wold Architects and Engineers

Wold Architects and Engineers
6 West Fifth Street
St. Paul, MN 55102

Kevin P. Sullivan, AIA
(612) 227-7773

Design team
Kevin Sullivan, AIA
Principal-in-Charge

Michael Derrig, AIA
Project Manager

Jill Smith, IIDA
Programmer/Interior Designer

Client
Independent School District #196
(612) 423-7700

Grade span
6-8

Current building capacity
1,200

Current building area
193,000 square feet

Total project costs
$17.3 million

Cost per square foot
$90

Space per student
161 square feet

Cost per student
$14,417

Completion date
July 1994

Black Hawk Middle School was completed in the summer of 1994. Designed by Wold Architects and Engineers, this facility is the architectural embodiment of the latest developments in educational philosophy, which state that schools will be more effective if they are organized around the needs of students rather than the subject-matter expertise of teachers.

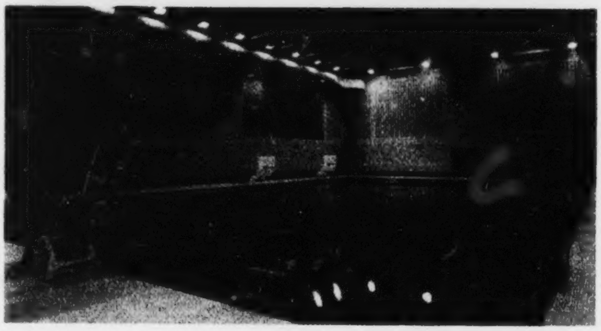
Rather than a departmental organization that requires students to move throughout the building to receive instruction in each subject, Black Hawk organizes the majority of its instructional and support spaces into a series of eight identical "houses" where information moves to the student.

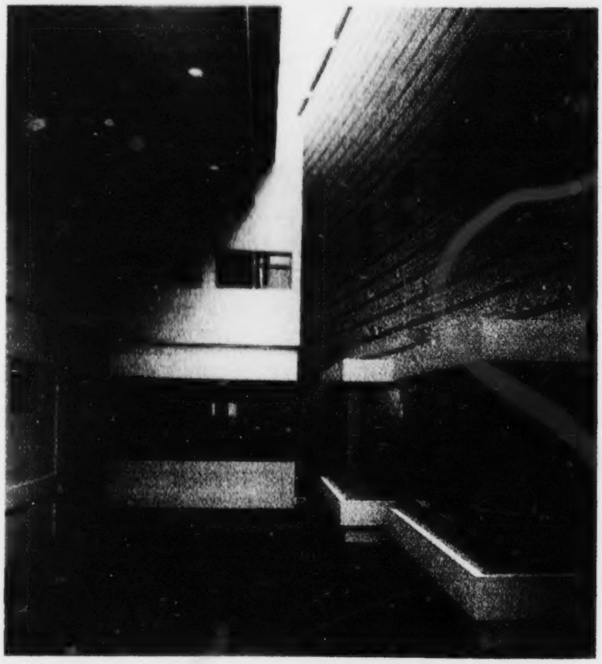
Design experimentation formed the most challenging aspect of the Black Hawk project. Since no prototypes or models of this type of middle school existed, Wold's design was purely creative. The firm's answer to this new educational philosophy includes a flexible collection of classrooms and support spaces able to accommodate virtually any type of subject matter.

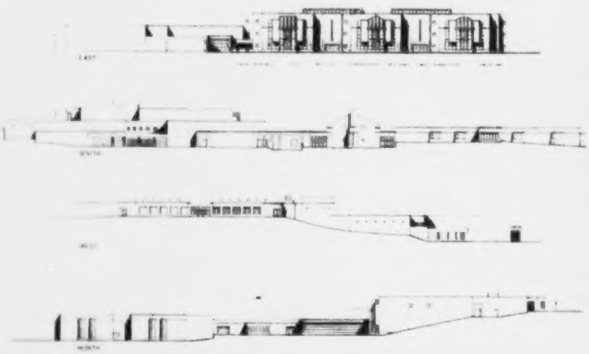
The house concept is demonstrated by three distinct building segments.

Construction includes durable materials such as brick, precast concrete sills, and metal canopies. A skylit atrium divides two main segments of the school—the houses on one side and academic support spaces on the other. ■

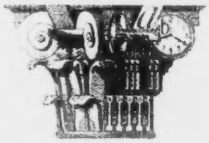
Overview


Six-lane lap pool


Skylit atrium


Exterior elevations

MIDDLE SCHOOLS
Addition



BLAIRSVILLE MIDDLE/SENIOR HIGH SCHOOL
BLAIRSVILLE, PENNSYLVANIA
HHSDR Architects/Engineers

HHSDR Architects/Engineers
40 Shenango Avenue
Sharon, PA 16146
(412) 981-8820

Design team
J. Greer Hayden
Principal-in-Charge
Andreas Dometakis
Project Architect

Client
Blairsville-Saltsburg School District
(412) 459-5500

Grade span
6-12

Current building capacity
906

Current building area
145,000 square feet

Building area before addition/renovation
78,000 square feet

Total project costs
$12.1 million

Cost per square foot
$83

Space per student
160 square feet

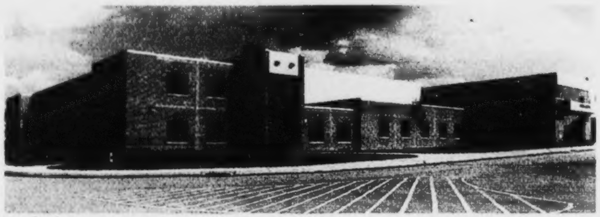
Cost per student
$13,320

Completion date
November 1994

The additions and alterations of the former Blairsville Senior High School integrate a middle school within the high school facility, as well as house the district administrative offices. Design criteria maintained throughout this project include:

- Handicap accessibility—installation of two elevators, wider doors, restroom access, and emergency systems.
- Inclusion of technology—all instructional spaces and offices are equipped with telecommunications, video, and computer data systems.
- Compatibility of new and existing materials—the additions are steel frames and brick veneer insulated cavity walls on CMU back-up, similar to existing.

The "school within a school" concept is achieved through both "separate use" and "shared use" spaces.



South elevation

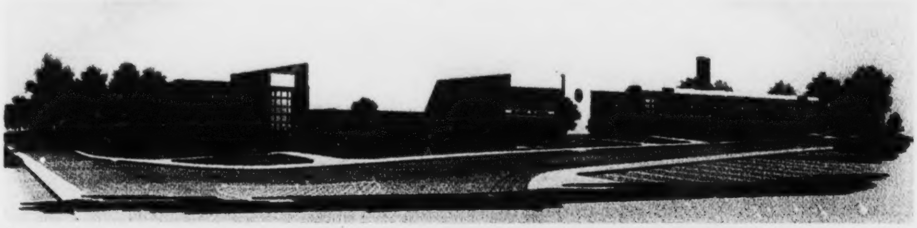
Separate-use spaces include:

- Two-story addition housing middle school classrooms.
- Addition of a separate gymnasium and locker room facilities for middle school programs and sports.
- Enlargement of the existing cafeteria/kitchen and subdividing it to seat middle and high school students separately.
- Separate middle and high school offices.

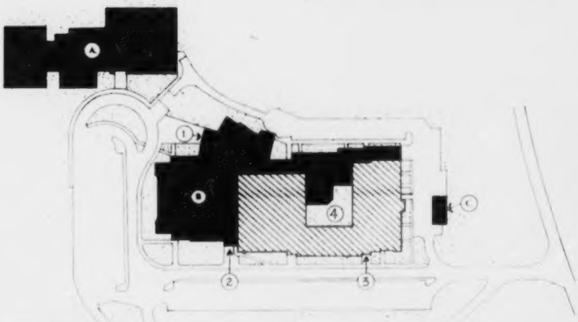
Shared-use spaces include:

- Alterations to the art, homemaking, and technology education programs.
- Centrally located library addition enclosing two wings of the existing facility, creating a courtyard between them.
- Auditorium/stage addition that can be subdivided into three large-group instruction spaces. The auditorium is centrally located not only to both the middle and high school programs but also adjacent to the new elementary school constructed north of this facility.

This entire facility received insulated windows, doors, rubber-roof membrane, energy-efficient lighting, and an HVAC energy management system. The new gas-fired boilers within the addition serve this facility, as well as the new elementary school. ■



Overview



Site plan

Auditorium

MIDDLE SCHOOLS
New Construction

BRITTANY HILL MIDDLE SCHOOL
BLUE SPRINGS, MISSOURI

Frangkiser & Hutchens

Frangkiser & Hutchens
4306 Dr. Greaves Road
Grandview, MO 64030
Eric Ulmer, AIA
(816) 761-8900

Design team
Eric Ulmer, AIA
Principal-in-Charge
Pat Sutliff
Project Architect
Pam Hunt
Interior Designer

Client
Blue Springs, R-IV
(816) 224-1300

Grade span
6-8

Current building capacity
900

Current building area
112,073 square feet

Total project costs
$7.73 million

Cost per square foot
$69

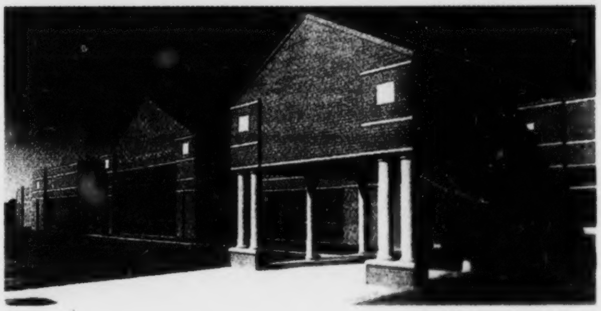
Space per student
125 square feet

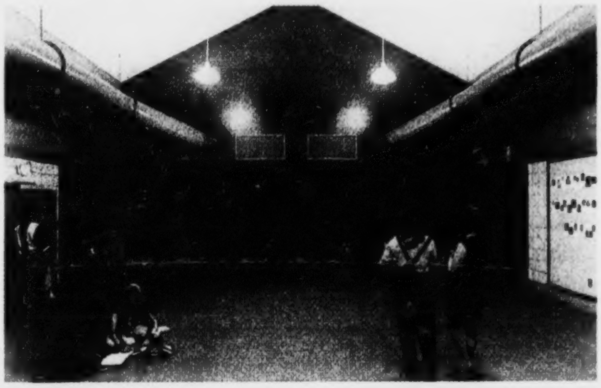
Cost per student
$8,588

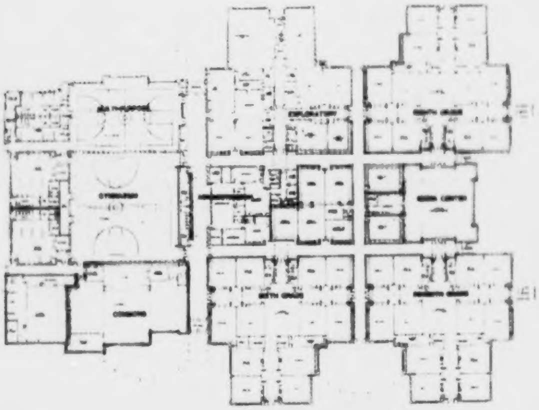
Completion date
August 1994

The district asked for a facility that provided grade levels isolated with a commons area for each grade level. Interdisciplinary teams are located together with one flexible wall classroom. Adequate storage space is available, designed especially for science. A localized plan room for each interdisciplinary team is complete with phones and lockers isolated in each grade area. A media center that includes computer labs and storage is placed central to core classes. Brittany Hill has a general commons area with a cafeteria, a sports field for use by physical education classes and intramurals, and a stage or performance area for large assemblies and meetings.

The firm responded with a unique design that provides three grade-level communities of 300 students with three families per community. Each family area consists of a four-teacher interdisciplinary team and 100 students. Each grade-level community has its own commons area and toilet facilities. Each family area also has its own team planning area and two classrooms with a common flexible acoustical wall that permits the easy creation of a large-group instruction area in the family. The design also includes a core media center that has close proximity to each community and a divider corridor that creates public use areas on one side and instructional areas that can be secured during public use. ■


Exterior


Commons area


Floor plan

Interior

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MIDDLE SCHOOLS
New Construction

CALEDONIA MIDDLE SCHOOL
CALEDONIA, MICHIGAN

GMB Architects-Engineers

GMB Architects-Engineers
145 College Avenue
P.O. Box 2159
Holland, MI 49422-2159

Harm Perdok
(616) 392-7034

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Harm Perdok
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Tom Van De Griend
Project Architect

John Eberly
Electrical Engineer

Amy Hersey
Interior Designer

Tim Gerrits
Landscape Designer

Ron Snoeyink
Mechanical Designer

Jim Vanderveen
Mechanical Engineer

Client
Caledonia Community Schools
(616) 891-8185

Grade span
6-8

Current building capacity
750

Current building area
150,000 square feet

Total project costs
$16.8 million

Cost per square foot
$112

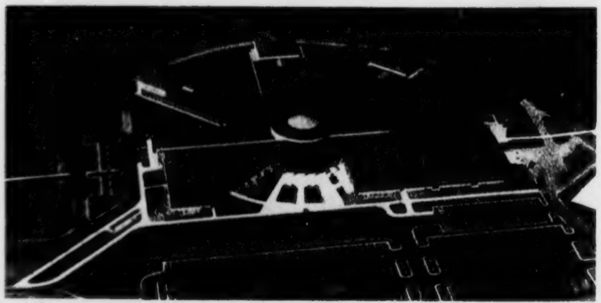
Space per student
200 square feet

Cost per student
$22,400

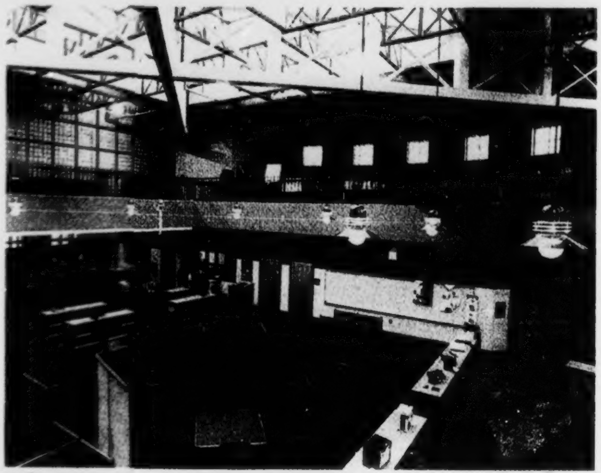
Completion date
August 1995

The Caledonia Middle School had the need for an organizing element to unify the entire facility. This element is the integrated technology system that became the backbone or spine of the facility. This spine intersects all areas of the facility and slices directly through the centrally located media center. The media center is attached to all classroom pods to provide easy access for all students. All classrooms are designed in pod configurations, which can be divided into three to 10 classrooms depending upon the teaching strategy. Each classroom area has its own technology unit to provide access to voice, video, and data equipment.

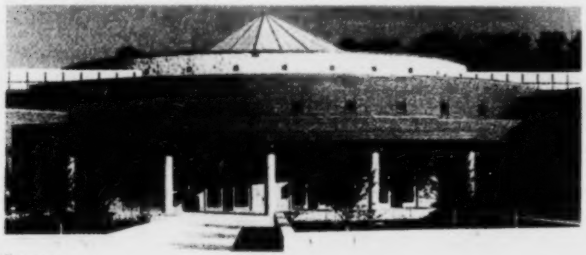
Being quite large, this facility required some unique materials to break up the exterior appearance. To provide for this, a building base of rock face block was used on the lower part of this facility and as an accent on the remainder of the facility for a warm and attractive appearance. A primary concept inside this facility was to use natural lighting in every area. This was accomplished in the classrooms with standard windows and in the public spaces with skylights. Interior finishes are standard, no-nonsense materials that are attractive yet inexpensive to install and maintain. ■



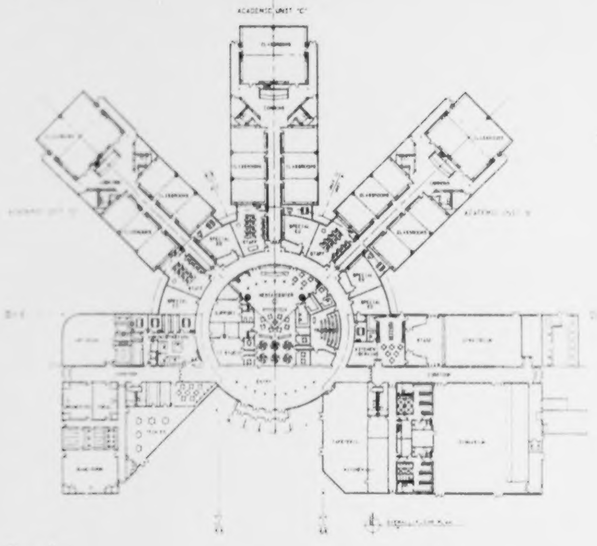
Aerial view



Media center



Entrance



Floor plan

MIDDLE SCHOOLS
Project in Progress

CENTRAL YORK MIDDLE SCHOOL
YORK, PENNSYLVANIA

L. Robert Kimball and Associates

ARCHITECTURE AWARD WINNER

L. Robert Kimball and Associates
Washington Square, Suite F
21 West Washington Street
West Chester, PA 19380

A. Stevens Krug, AIA, PE, CEM
(610) 692-2232

Design team
David L. Schrader, AIA
Project Architect

Gavin B. Speirs, AIA
David C. Mazzocco
Bruce E. Bachtle, AIA
Project Team

Edward Kirkbride, REFP
Educational Consultant

Client
Central York School District
(717) 846-6789

Grade span
6-8

Current building capacity
1,200 (proposed)

Current building area
171,000 square feet

Building area before addition/renovation
122,392 square feet

Total project costs
$14.3 million

Cost per square foot
$83

Space per student
143 square feet

Cost per student
$11,916

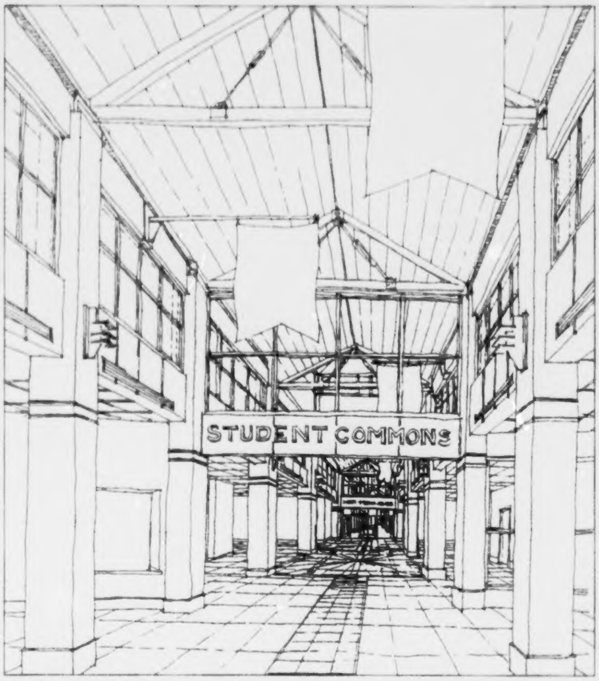
Completion date
December 1996

A middle school of the 21st century must provoke the interest of the students and provide a stimulating educational environment. The project combined a 1950s' utilitarian school structure with a progressive academic program to create a learning center suitable for the informational age and beyond. A three-part division of the building (classroom, technology, and performance/physical education) houses the students' evolving needs.

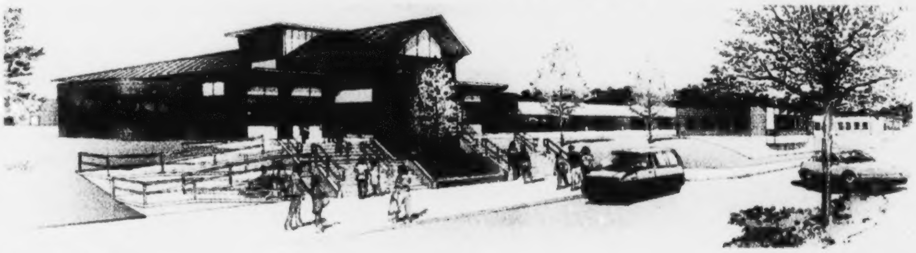
The team teaching concept required for the three grades was accomplished through adding classroom pods and reorganizing the existing classrooms. A centralized media center spine becomes an organizational element used to connect a new public entrance/administration area with the new student entrance/dining. All classrooms can access the media center via multimedia technology, and all computers are linked through a fiber-optic backbone system. The performance and physical education areas were altered to accommodate the increased program size. New finishes were added throughout the building, and the entire exterior was redesigned to create a new image.

Energy conservation design for this building included replacement of the exterior windows and doors, reducing the overall window area. The HVAC system and plumbing systems were also replaced, and the electrical system was upgraded to include installation of a primary service transformer.

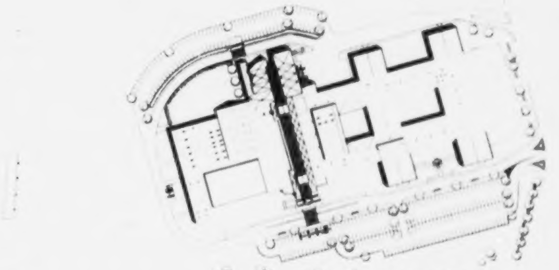
Facing difficult time constraints, the design was completed on time and under budget. A six-phase, $12.5-million construction process allowed classes to continue during the 18 months of additions and alterations. ■



Conceptual sketch—"media spine" interior view

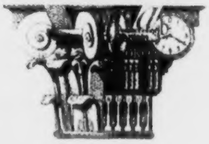


Proposed public entry



Site plan

MIDDLE SCHOOLS
Project in Progress



CONESTOGA VALLEY MIDDLE SCHOOL LANCASTER COUNTY, PENNSYLVANIA

Foreman Architects and Engineers

Foreman Architects and Engineers
2685 Hossler Road
Manheim, PA 17545

Tom White
(412) 452-9690

Design team
Phillip Foreman
Project Manager

Pedro Ortiz
Chief of Design, Project Architect

Chantha Chhay
Designer

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Mechanical Engineer

Steve Cotherman, PE.
Electrical/Technology

Gary Giles, PE
Structural Engineer

Kenneth Nagie, AIA, FSCI, CCS
Specification Writer

Juli Rogozewicz
Interior Designer

Janet Bashford
Interior Designer

Client
Conestoga Valley School District
(717) 397-2421

Grade span
7-8

Current building capacity
926

Current building area
111,000 square feet

Total project costs
$10.16 million

Cost per square foot
$92

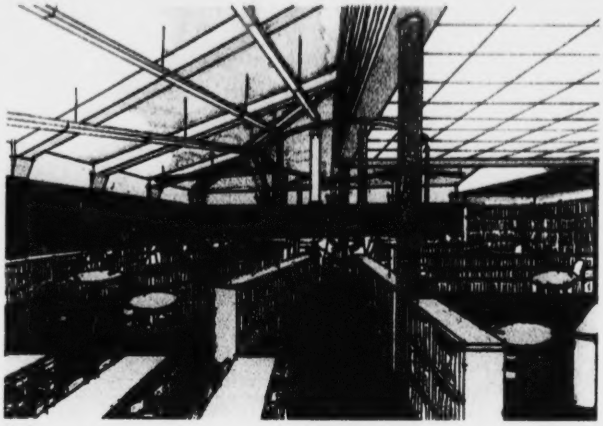
Space per student
120 square feet

Cost per student
$10,968

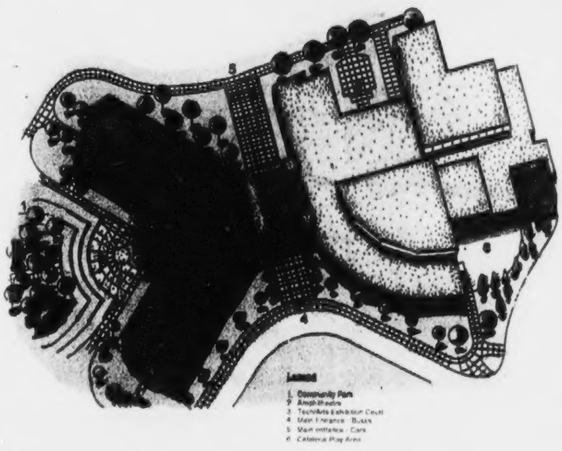
Completion date
September 1997

Located in a rural residential area in Lancaster County, the school's setting inspired a design approach concerned with conserving the character of the land and traditional building types. The design of the building exterior employs a scale and vocabulary responsive to the traditional countryside community surrounding it, recalling older schoolhouses. The parking was developed behind the school, avoiding the typical "shopping mall/sea of parking" in front of the building and allowing for access to playfields and the community park. Only the bus loop is in front of the building. This allows for large fields facing the community and effectively separates car, service, and bus traffic.

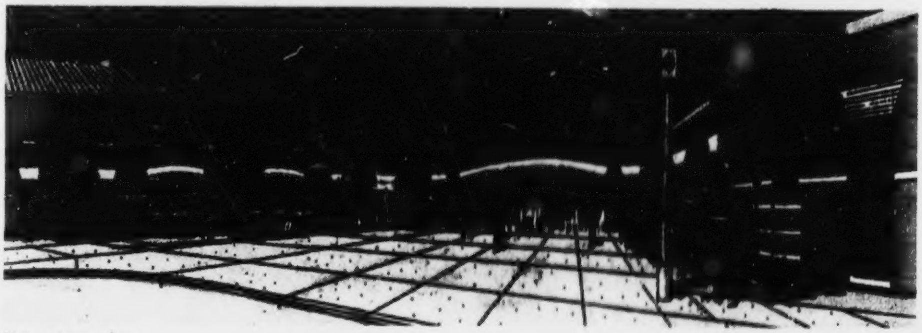
The building design does not follow a departmental organization model; instead, it divides the student body into five semi-autonomous teams. Located in the academic wings, these teams embrace a community park with an amphitheater and media center at its heart. All instructional spaces are networked with a voice, video, and data system whose hub is at the media center. The loud common areas are removed from the quiet academic areas, allowing a secure use of public areas after school hours. The link between these areas is the administrative core that surrounds the main entrance. ■



Media center



Site plan



Main entrance plaza

MIDDLE SCHOOLS
New Construction

COTTAGE GROVE JUNIOR HIGH SCHOOL
COTTAGE GROVE, MINNESOTA
Armstrong, Torseth, Skold & Rydeen, Inc.

Armstrong, Torseth, Skold & Rydeen, Inc.
4901 Olson Memorial Highway
Minneapolis, MN 55442
Zack Johnson, AIA
(612) 545-3731

Design team
Jim Rydeen
Principal-in-Charge
Tammy Magney
Project Architect
Zack Johnson
Project Manager
Chris Gibbs
Project Designer

Client
South Washington County Schools
(612) 458-6206

Grade span
7-9

Current building capacity
1,050

Current building area
176,000 square feet

Total project costs
$14.3 million

Cost per square foot
$81

Space per student
167 square feet

Cost per student
$13,600

Completion date
July 1995

The design concept incorporated grade level houses with the Flexible Team Learning Areas (FTLAs) and staff planning spaces.

The design includes a competitive swimming pool with 200 spectator seats, student commons, separate entrances for students and general public, centrally located media center, and a multipurpose cafetorium to accommodate seating for 500. The overall building concept allows for the easy access to and subdivision of the public spaces such as the pool, gymnasiums, and cafetorium, from the academic areas. This facilitates the community education programs and security planning for the building.

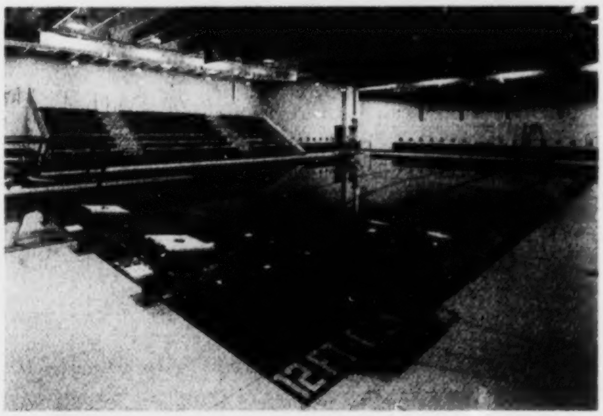
In response to the school district's goals, the facility planning and design was visionary, efficient, economical, and effective. The open and inviting feel of the building was accomplished through the incorporation of natural light and resulted in a safe, nurturing, user friendly school design. Opportunities for educational delivery flexibility were accomplished through the design of FTLAs, conference rooms within the houses, dispersed special education areas, and large-group areas.

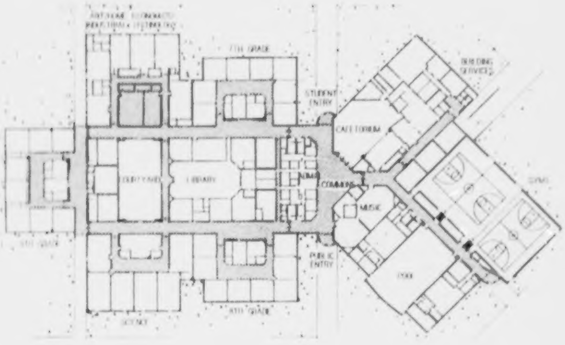
Technology was a highly integrated element, and access to resources was designed into the facility through the use of voice, data, and video systems.

Siting and building layout were developed to allow for easy expansion of the gymnasium and classroom areas. Environmentally sensitive design and materials selection were important issues throughout the project. ■

Main entry

Student commons


Competition pool



Floor plan

MIDDLE SCHOOLS
New Construction

DISCOVERY MIDDLE SCHOOL VANCOUVER, WASHINGTON

Lein, Stanek & Willson, PS

GRAND PRIZE AWARD WINNER

Lein, Stanek & Willson, PS
2300 Main Street
Vancouver, WA 98660

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Design team
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Ralph R. Willson, AIA
Programming

John D. Wyckoff, AIA
Designer/Project Architect

Kramer-Gehlen
Structural Engineers

Manfull Curtis
Mechanical Engineers

MKE, Inc.
Electrical Engineers

Hopper & Dennis
Civil Engineers

Al Duble
Acoustical Engineer

Jim Jerde
Cost Consultant

Client
Vancouver School District #37
(360) 696-7191

Grade span
6-8

Current building capacity
950

Current building area
118,367 square feet

Total project costs
$11.73 million

Cost per square foot
$99

Space per student
124 square feet

Cost per student
$12,346

Completion date
July 1995

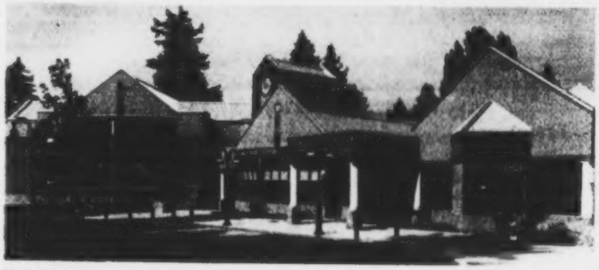
Discovery Middle School was designed to facilitate Vancouver School District's unique teaching and learning model. Approximately one-third of a student's day is spent in individualized instruction—either through technology, self-study, or working with a teacher. One-third of the day is spent in cooperative learning activities, and one-third is spent in large-group instruction such as music or physical education.

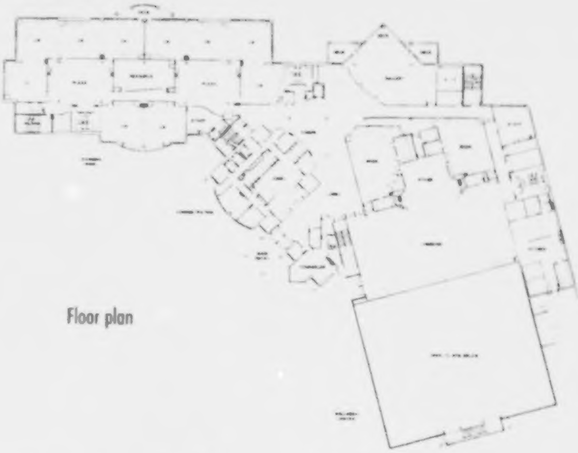
Lein, Stanek and Willson assisted the school district in completing an 11-month community involvement effort to select a site for Discovery Middle School. During the cooperative planning process, the district and community envisioned the school as an "environment island" in an urban setting.

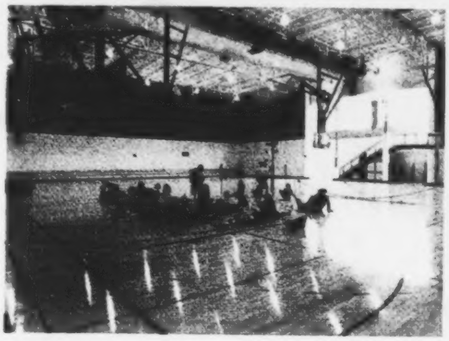
Nestled into a steep hillside and surrounded by fir trees, the building rises to three stories. Windows and skylights bring the outdoors inside, while covered areas and natural wildlife surroundings draw students outside.

Practicality and flexibility are apparent throughout the design. Separate houses located on all three floors help create a sense of community within the larger school. Clusters of 10 classrooms surround activity/work centers for cooperative learning. Vinyl floors and sinks make these central areas useful for small- and large-group projects. A unique building feature called the "tool box" is located on the lower level for integrated arts and technology education.

More like a field house than a traditional gymnasium, the physical education section of the building is designed for extensive community use. Separate entrances allow this area to be secured from the rest of the building during weekends and non-school hours. ■


Main entrance


Floor plan


Gymnasium

Tool box

MIDDLE SCHOOLS
New Construction

DONOVAN JUNIOR HIGH SCHOOL UTICA, NEW YORK

Harza Northeast

Harza Northeast
181 Genesee Street
Utica, NY 13501

Donald Maholm, AIA
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Landscape Architect

Frederick J. Kircher, PE
Structural Engineer

Carlton R. Warner, PE
Mechanical Engineer

John M. Rickert, PE
Electrical Engineer

Alan M. Swierczek, PE
Civil Engineer

Klepper Marshall King Associates, Ltd.
Acoustical Consultant

Roland F. Greaves
Food Service Consultant

Client
Utica City School District
(315) 792-2006

Grade span
7-9

Current building capacity
900

Current building area
148,000 square feet

Total project costs
$10.66 million

Cost per square foot
$72

Space per student
2,056 square feet

Cost per student
$11,840

Completion date
September 1993

The media center is the focal point of the new 900-student Donovan Junior High School. Centrally located at the "elbow" of the L-shaped building, it is visible from the academic commons through curved glass walls.

The school's outstanding performing arts program is accommodated by a 400-seat auditorium with a fully accessible stage and a music suite with separate rehearsal rooms for band, orchestra, and choir.

Locating the auditorium and the gymnasium/cafeteria in the remote "wings" allow these spaces to be used for evening functions by the school and the community while the academic core remains secured.

To support team teaching, the classrooms are arranged in modular clusters, with adjacent teachers' work rooms.

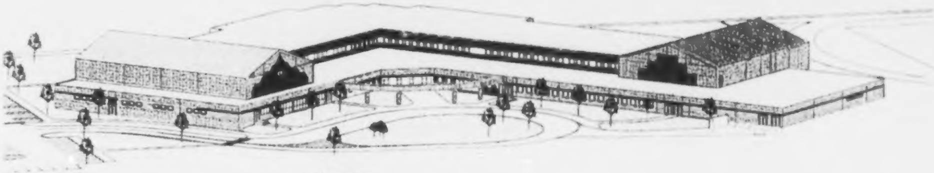
Materials were selected for aesthetics, economy, and durability and include brick, ground face concrete block, and terrazzo. ■

Exterior

Stairwell

Cafeteria

Large group instruction


Overview

MIDDLE SCHOOLS
New Construction

DUBOIS AREA MIDDLE SCHOOL
DUBOIS, PENNSYLVANIA
The Eckles Company Architects

The Eckles Company Architects
301 N. Mercer Street
New Castle, PA 16101
Vincent P. Lamorella, AIA
(412) 652-5507

Design team
Vincent P. Lamorella, AIA
Principal Architect
Joseph S. Spagnuolo, AIA
Project Architect
R. Todd Ketterer
Staff Designer
Charles A. Rozzi
Senior Drafter
Randall W. Riggans
Senior Drafter
Jeannette N. Weber
Drafter
Frank J. Trott
Drafter

Client
DuBois Area School District
(814) 371-2700

Grade span
6-8

Current building capacity
1,400

Current building area
164,540 square feet

Total project costs
$15.96 million

Cost per square foot
$97

Space per student
117 square feet

Cost per student
$11,406

Completion date
August 1995

The 164,540-square-foot building is designed for 1,400 students with 64 teaching stations. It is fully air conditioned with a chilled water, unit ventilator system. The exterior is brick with an aluminum standing seam roof.

The building is designed for a team teaching concept. Each grade contains four units of three or four classrooms, a science room, and an IPC Room.

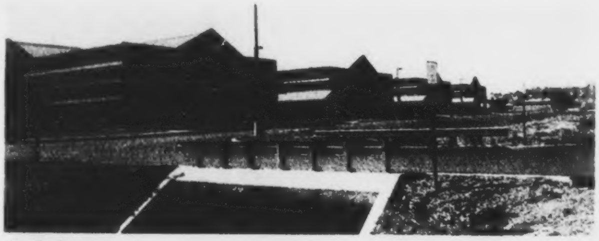
State-of-the-art public announcement, fire alarm, and computer systems are all built in to the building. Each classroom is wired for eight computers.

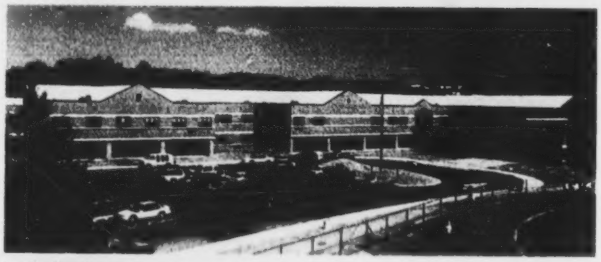
The building is constructed of steel framing with steel studs and brick veneer exterior. Interior partitions are double-layer gypsum wall board in the teaching areas and concrete masonry units in the shop and gym areas.

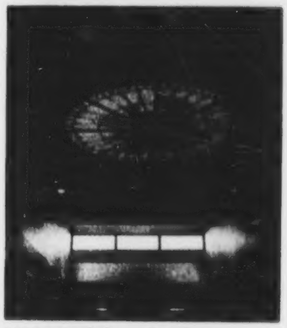
Classroom floors are carpeted, the corridor walls are finished with ceramic tile, and the corridors and cafeteria floors are porcelain ceramic tile.

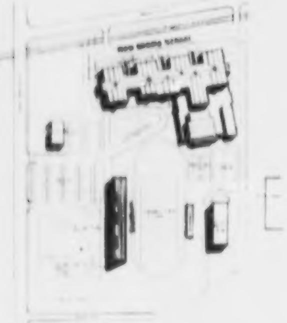
The site contains access roads, a large parking lot, a tennis court, an outdoor basketball court, a softball field, and an adjoining football stadium and running track.

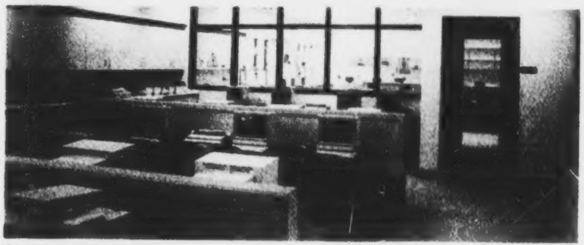
The project construction cost was $15,958,130 or $97.15 per square foot, including site work. ■

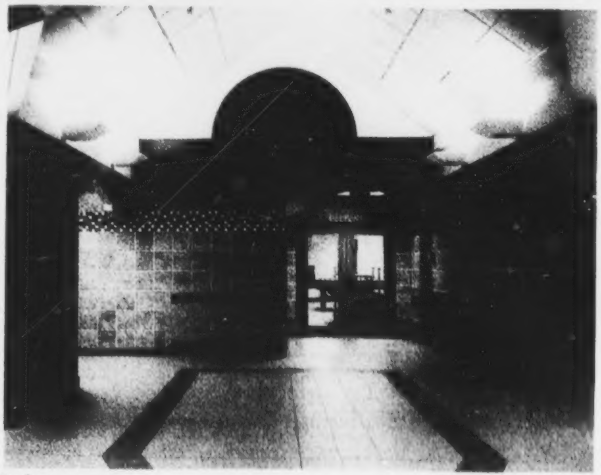

North elevation


South elevation


1910 stained glass ceiling dome


Site plan


Computer rooms


Student commons

MIDDLE SCHOOLS
Renovations

EDISON MIDDLE SCHOOL SOUTH BEND, INDIANA

DLM Architects, Inc.

DLM Architects, Inc.
510 W. Jefferson Boulevard
South Bend, IN 46545
Anthony J. Germano
(219) 259-5619

Fanning/Howey Associates, Inc.
114 York Street
Michigan City, IN 46360

Design team
Anthony J. Germano, AIA
Principal-in-Charge
Lee F. Brockway, AIA
Principal-in-Charge
Doug Wickstrom, AIA
Designer
Roger Hulsey
Project Architect

Client
South Bend Community School Corporation
(219) 282-4000

Grade span
7-8

Current building capacity
900

Current building area
179,500 square feet

Building area before addition/renovation
150,000 square feet

Total project costs
$11.6 million

Cost per square foot
$65

Space per student
200 square feet

Cost per student
$12,857

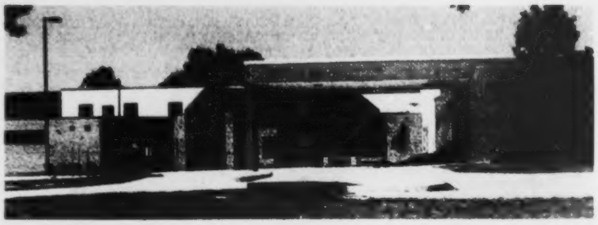
Completion date
August 1994

The existing building was constructed in 1955 as a K-8 facility and had two additions, but no overall facility improvements, prior to this project. When the building was designated as a middle school in the early '80s, no facility changes were made to respond to the middle school curriculum. The primary goal of this project was to upgrade the facility to meet the middle school instructional program through complete remodeling and necessary additions.

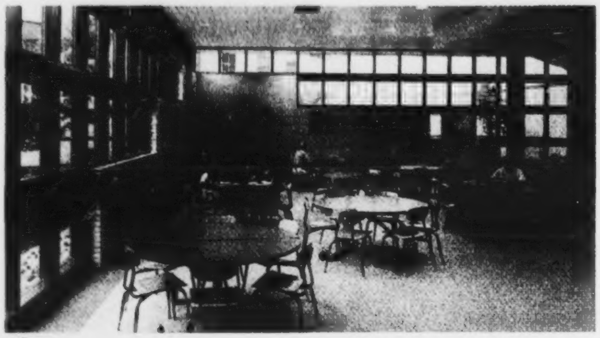
The middle school curriculum is organized around a team teaching concept. To accommodate this concept, four team "pods" were developed in the existing second floor classroom spaces. Instructional spaces were provided for four teams, consolidating the core academic spaces on the second floor. The first floor was developed to provide program enhancement and support functions including fine arts, industrial technology, physical education, IMC, large-group instruction, and administration.

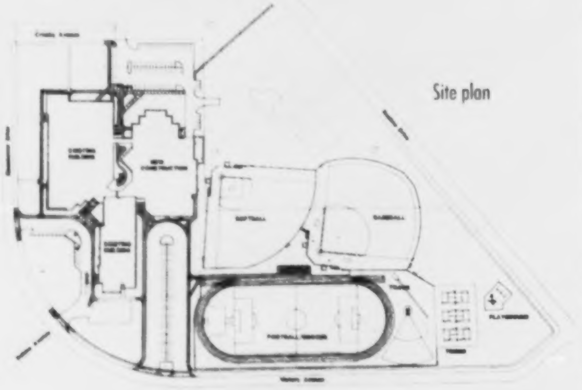
The facility is zoned to provide full access to the community for use of non-academic areas. The primary building entrances are directly accessible to a commons area from which the academic and support space groups can be reached.

The facility has a voice, video, and data educational technology system fully integrated into and connecting all instructional spaces. ■


Overall elevation

Courtyard


Cafeteria


Site plan

MIDDLE SCHOOLS
New Construction

FOSTORIA MIDDLE SCHOOL
FOSTORIA, OHIO
Freytag & Associates, Inc.

Freytag & Associates, Inc.
226 N. Miami Avenue,
P.O. Box 220
Sidney, OH 45365-0220

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Principal-in-Charge

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Senior Planning Consultant

Donald Brulport
Project Architect

Kristie Krueger-Gross, AIA
Interiors

Philip Freytag, AIA
Specifications

George Fernandez
Structural/Civil Engineer, Construction Observation

Keith Miller
William Mentges
Michael Holt
John Rausch
Bruce Miller
Production Team

Heapy Engineering
Mechanical/Electrical Consultants

Vorndran & Associates
Kitchen Consultants

Client
Fostoria City School District
(419) 435-8163

Grade span
6-8

Current building capacity
750

Current building area
103,000 square feet

Total project costs
$9 million

Cost per square foot
$73

Space per student
137 square feet

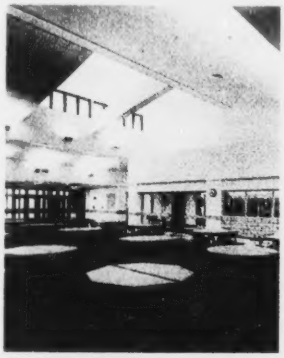
Cost per student
$9,795

Completion date
February 1994

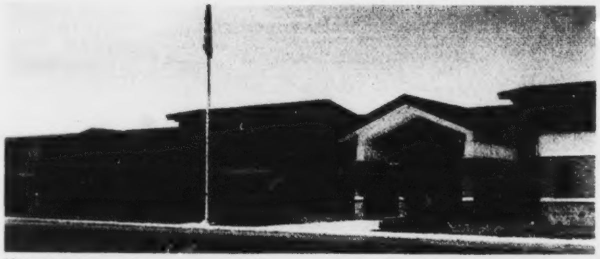
Faced with a rapidly deteriorating existing facility, and a desire to incorporate a "team teaching" curriculum, the district embarked on an accelerated building program.

The plan is organized using the concept of eight "teaching communities" of four classrooms and two workrooms. The center classrooms are dividable, providing a flexible multi-function space. Specialized areas—including science, computers, art, life skills, and the media center—are clustered in a center core to facilitate integrated learning with each teaching community. The design concept provides flexibility for the future and incorporates immediate computer/telecommunications/telemedia systems throughout each classroom. Interior spaces are zoned to separate community functions (gymnasium, cafeteria/multi-purpose room) from the academic area, allowing evening and weekend usage without compromising building security.

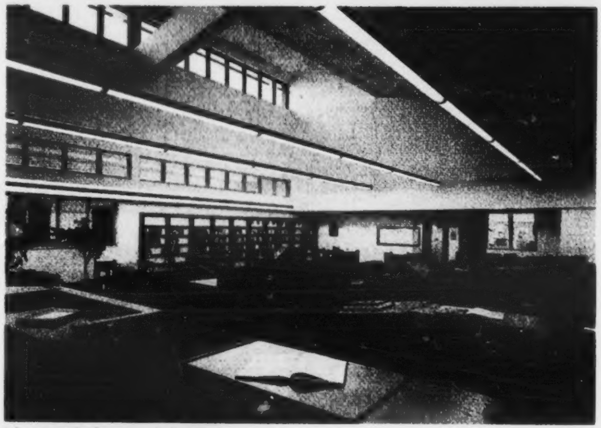
The entrance to the building is clearly defined by an open canopy leading students and visitors to a common area easily accessible to administration offices.



Multipurpose space



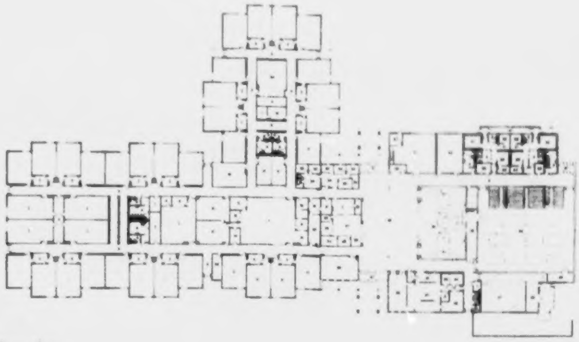
Main entrance



Library with clerestory lighting

The building scale and harmony are achieved through the use of a sloping metal roof and clerestory windows and by varying the exterior wall surfaces through a combination of masonry and an exterior insulation system. A thermally glazed steel-framed building with a zoned variable-volume HVAC system provides low maintenance and energy efficiency.

Exterior spaces are organized to separate service functions from pedestrian circulation while providing controlled bus circulation and parking on the rural campus shared with the high school. ■



Floor plan

© 1995, Landis & Gyr

If you think this is hard...

Try being a school official.

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MIDDLE SCHOOLS
New Construction

GENEVA MIDDLE SCHOOL
GENEVA, ILLINOIS
Hammel Green and Abrahamson, Inc.

Hammel Green and Abrahamson, Inc.
1201 Harmon Place
Minneapolis, MN 55403
Steve Miller
(612) 337-4109

Design team
Steve Miller
Principal/Project Manager and Project Designer
Jamie Milne-Rojek
Project Architect
Tom Oslund
Landscape Architect
Tom Lind
Mechanical Engineer
David Marshall
Electrical Engineer
Mark Hoel
Structural Engineer
John Moreira
Civil Engineer

Client
CUSD #304
(708) 232-0678

Grade span
6-8

Current building capacity
1,050

Current building area
152,000 square feet

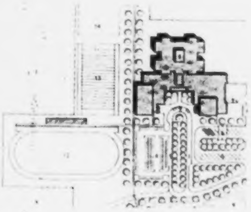
Total project costs
$10.92 million

Cost per square foot
$72

Space per student
145 square feet

Cost per student
$10,400

Completion date
August 1994



Site plan

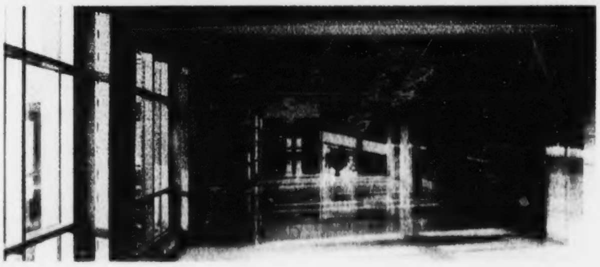
The challenge of this replacement middle school was two-fold: Provide a facility conducive to supporting an innovative educational delivery model and maintaining the community's historic architectural tradition. To accomplish this, the master plan coupled an innovative house concept plan with a classic exterior.

Eight houses serve 130 students each. Each house includes five classrooms clustered around an open team space that serves as a resource, computer, and social center for students. The houses all border the media center—the school's information hub and its symbolic center.

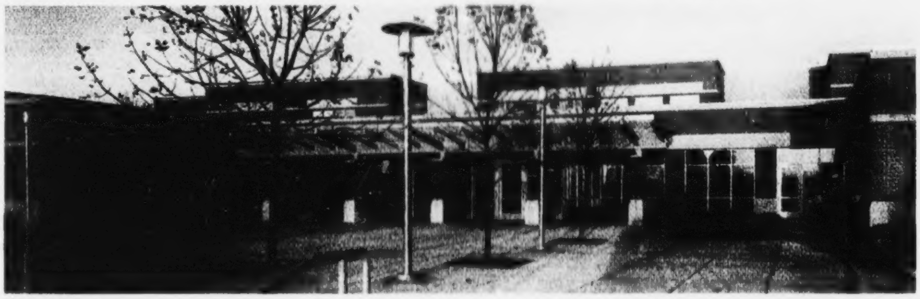
The school has three distinct wings—academic, physical education, and arts/cafeteria. This organization reduces the scale of the 150,000-square-foot building and creates separate entrances to accommodate off-hours building access. The three building masses are grouped around an entrance courtyard that faces a city park and a lake. The school's exterior emulates the historic masonry buildings of downtown Geneva. Textured brick, cast stone detailing, pilastered walls, and coffered ceilings relate to traditional building forms.

In addition, the school needed the flexibility necessary to become a high school in the future. This school boasts the "best of both worlds" and is a perfect fit for Geneva—a city that respects the past and embraces the future. ■

Main entrance



Corridor



Main entrance

MIDDLE SCHOOLS
Renovation

HERNDON MIDDLE SCHOOL
HERNDON, VIRGINIA
Beery, Rio & Associates

Beery, Rio & Associates
4215 Evergreen Lane
Annandale, VA 22003

William T. Brown II, AIA
(703) 256-9700

Design team
William T. Brown II, AIA
Partner

Eka S. Rahardjo, AIA
Partner

Timothy L. Danforth, AIA
Partner

John R. P. Walker, Associate AIA

Client
Fairfax County Public Schools
(703) 246-3643

Grade span
7-8

Current building capacity
1,200

Current building area
202,000 square feet

Building area before addition/renovation
180,000 square feet

Total project costs
$13.16 million

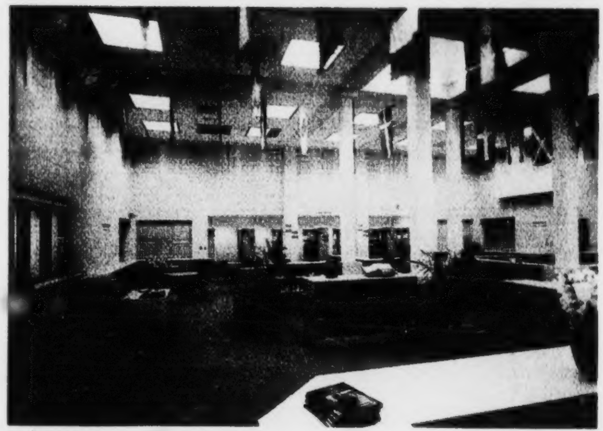
Cost per square foot
$65

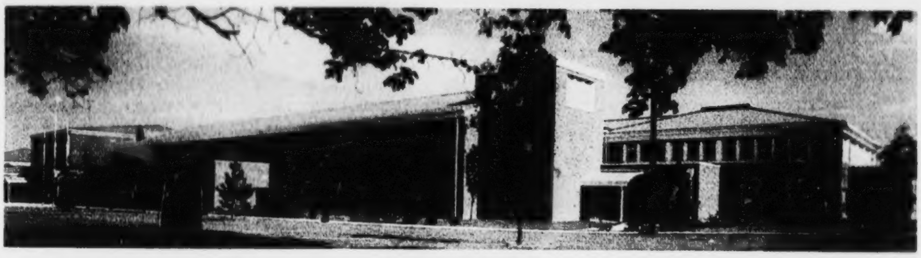
Space per student
168 square feet

Cost per student
$10,971

Completion date
March 1995

Herndon Middle School, originally a high school, was constructed, remodeled, and added to over a period of 65 years. It is a landmark in the town. Beery, Rio & Associates' design incorporates the middle school educational specifications. Selective pruning transformed a dysfunctional facility into a new middle school. This effort incorporated the latest technology and space utilization while honoring the proud past of the Herndon Middle School.


Media center



The project incorporates major additions—a gymnasium, kitchen/cafeteria, media center, center for the emotionally disturbed, academic wing, and administrative suite. New additions allowed for a new circulation configuration.

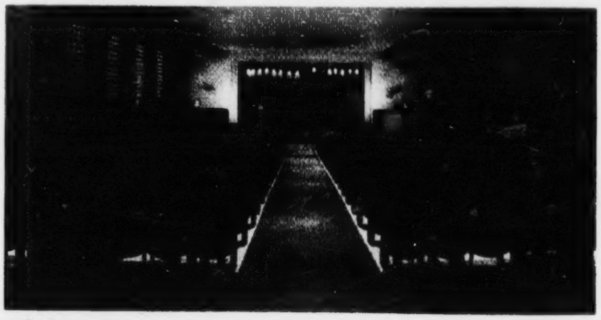
The entire school conforms with the Americans with Disabilities Act.

Adding new pitched metal roofs achieved an appearance compatible with the community and its traditions. Additions with pitched roofs accommodated a continuous attic space for all new systems distribution.

Security and monitoring problems were solved by relocating the administration offices to an area adjacent to the new main entrance. The reception area is immediately off the new lobby with a glass wall for visibility of pedestrian traffic.

The entire project was completed within a reasonable budget for a comparable new facility and with only minimal interruption to school operations. ■

Site plan


Auditorium

MIDDLE SCHOOLS
New Construction

CARLOS HOUCK MIDDLE SCHOOL
SALEM, OREGON
Dull Olson Weekes Architects

Dull Olson Weekes Architects
319 S.W. Washington Street
#200
Portland, OR 97204

Florence Shields
(503) 226-6950

Design team
Steve Olson, AIA
Partner-in-Charge

Jeff Johansen
Project Designer

Robert Enninga
Project Manager

Client
Salem-Keizer School District
(503) 399-3290

Grade span
6-8

Current building capacity
925

Current building area
106,000 square feet

Total project costs
$9.2 million

Cost per square foot
$87

Space per student
115 square feet

Cost per student
$9,946

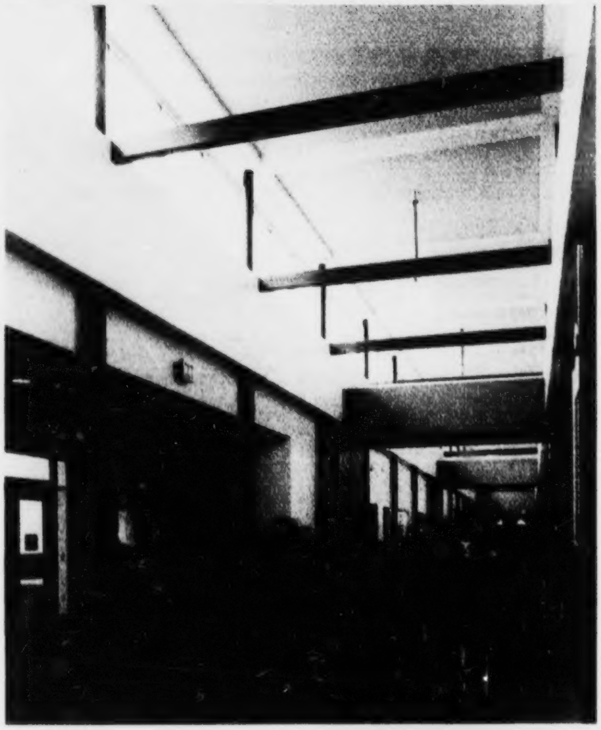
Completion date
July 1995

Carlos Houck Middle School is the second new middle school recently designed by DOWA for the Salem-Keizer School District.

The design supports the creation of three "houses" of classrooms that serve as smaller teaching or learning environments or "schools within the school." Each house has seven classrooms and a teacher planning area surrounding a common space for lockers and sharing opportunities. The houses are united in a compact two-story block with a fourth area containing science and language classrooms.

This block is linked to the gymnasium/activity areas by means of a wide interior "street" that offers a memorable orienting feature in the school's design. The main entrance is located at mid-point along this street with the school library directly ahead. Exploratory study classrooms are also reached from this central street. At each end are double-height cylindrical halls distinguishing the major centers of activity.

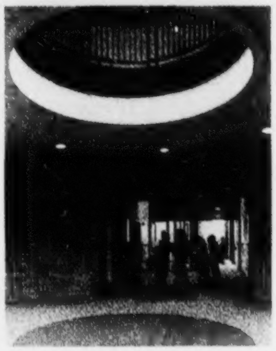
Front of school



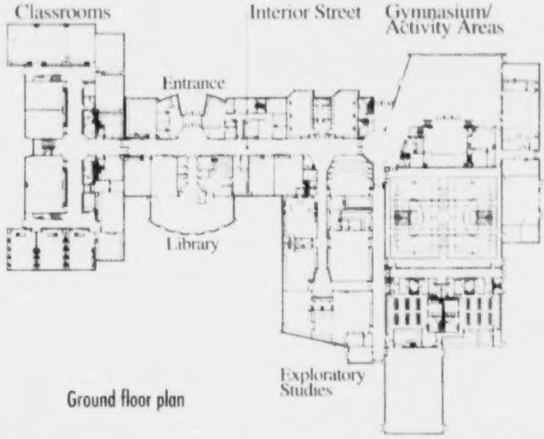
Interior street

The school and parking areas are placed to preserve two-thirds of the 20-acre site for playfields. Site entries align with the main entrance and a nearby cross street.

Carlos Houck Middle School presents a broad, low building mass to the viewer, anchored by the larger classroom and gymnasium masses at each end. ■



Double height cylindrical halls



Ground floor plan

MIDDLE SCHOOLS
Special-Purpose Facility

LADUE JUNIOR HIGH ST. LOUIS, MISSOURI

Wm. B. Ittner, Inc.

Wm. B. Ittner, Inc.
611 N. Tenth Street, Suite 200
St. Louis, MO 63101

Robert O. Little, AIA
(314) 421-3542

Design team
Robert O. Little, AIA
Principal-in-Charge and Principal Designer

Bud Felt, PE
Project Manager

Charles McKenna
Superintendent of Schools

Frank Fischel
Principal

Client
Ladue School District
(314) 994-7080

Grade span
6-8

Current building capacity
741

Current building area
104,850 square feet

Building area before addition/renovation
96,350 square feet

Total project costs
$835,000

Cost per square foot
$98

Completion date
January 1995

As part of its plan to meet increasing demands for advanced instructional technology and accommodate a growing student population, the district was challenged to design a library/media center addition that meets the educational objectives while complementing the original campus. The high-profile, semicircular library/media center addition completes the campus, which is located on a prominent West St. Louis County site. The masonry exterior and rounded, standing-seam roof echoes the materials used in the original gymnasium/cafeteria building.

An unusual opportunity to take advantage of natural lighting was developed by making the sloping roof overhang wider on the east and narrower on the west. The vertical windows, which encircle the structure and vary in decreasing size from east to west, capitalize on optimum sunlight throughout the day.

The interior diffusing lamps distribute uniform light on the desktops below and cast a soft glow on the vaulted wood ceiling, creating a warm, open, and inviting learning environment. The radial design of the ceiling is reflected in the wood stacks that fan out like spokes from the oval circulation and supervision desk in the room's center.

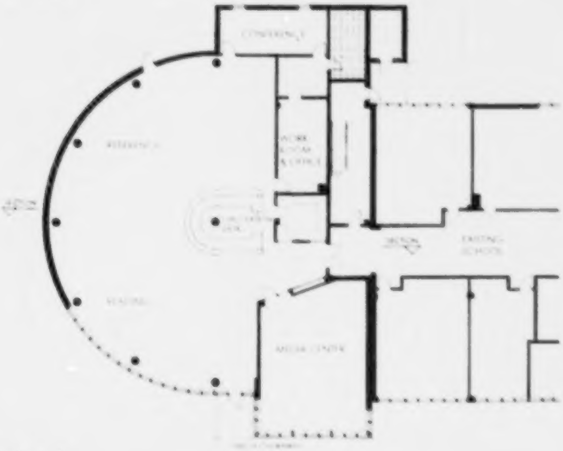
The library/media center's enhanced research capabilities utilize telecommunications, an online catalog, and a CD-ROM database. ■

Exterior view of library/media center

Unique, inviting study area

Centralized circulation/supervision area

Interior view of library/media center



Floor plan

MIDDLE SCHOOLS
Renovation

ISLANDER MIDDLE SCHOOL MERCER ISLAND, WASHINGTON

Erickson McGovern Peterson Storaasli Architects

Erickson McGovern Peterson Storaasli Architects
120 South 131st Street South
Tacoma, WA 98444

Steven J. Storaasli
(206) 531-0206

Design team
Rick McGovern
Partner-in-Charge

Steven Storaasli
Project Architect

Bitterling Crick Evenson
Mechanical Engineers

Chalker Putnam Collins & Scott
Structural Engineers

Brian Harron
Concept Engineer

Pam Lund
Design Perspectives

Client
Mercer Island School District
(206) 236-3305

Grade span
6-8

Current building capacity
850

Current building area
107,670 square feet

Building area before addition/renovation
79,210 square feet

Total project costs
$8.8 million

Cost per square foot
$82

Space per student
115 square feet

Cost per student
$9,400

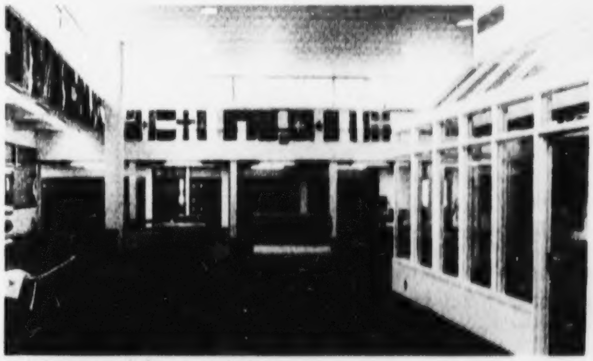
Completion date
September 1994

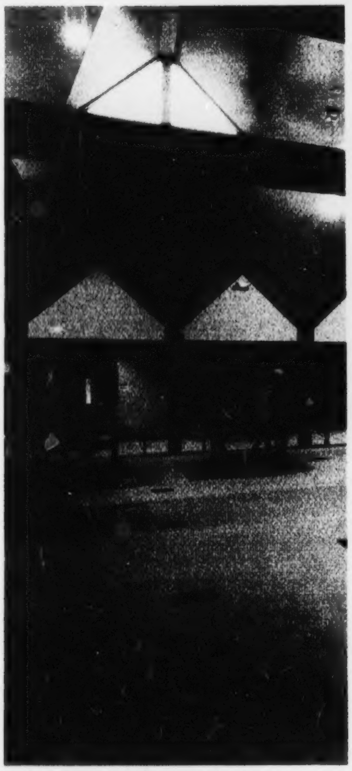
Islander Middle School consists of three separate buildings originally constructed in 1951 and added onto in 1965. The total building area was 79,210 square feet, not including 11 portables on site. This existing facility housed a student population of about 800 sixth, seventh, and eighth graders and desperately needed both expansion and modernization.

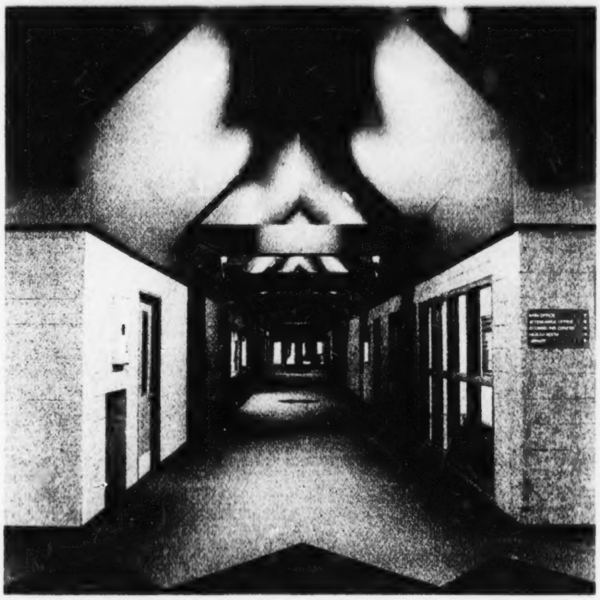
The greatest challenge was that no interim facilities were available to house the students. A fast-track, six-month construction schedule was developed to commence in February and finish in September.

The design program called for eliminating the portables, enlarging the music classrooms, and adding a gym/physical eduation teaching space.

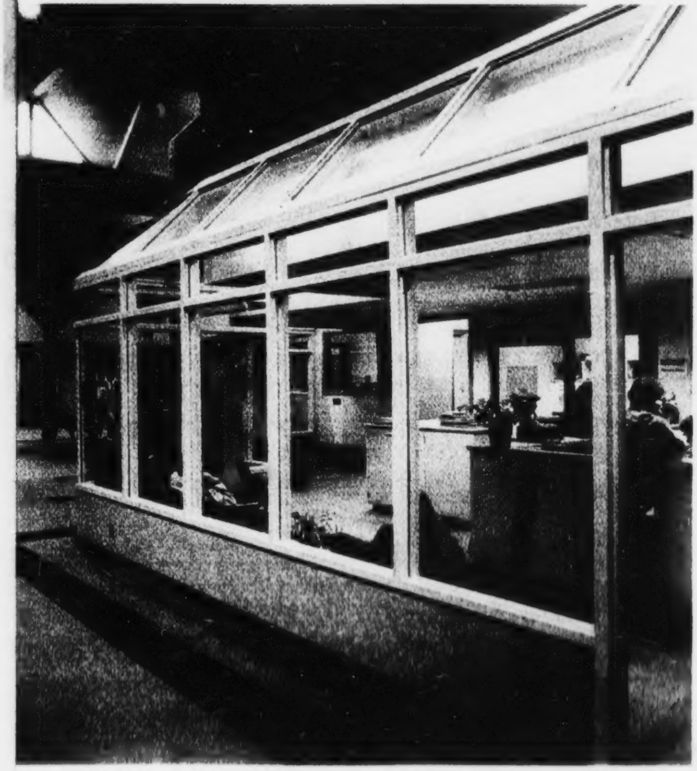
Thirteen classrooms were added to the main building, thus eliminating the need for

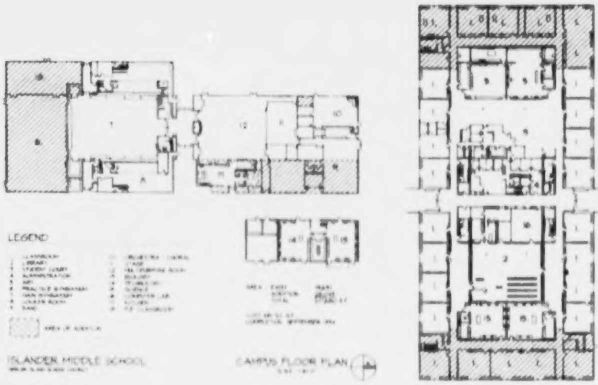

Student commons (before renovation)


Student commons (after renovation)


Main hallway (after renovation)

Main hallway (before renovation)





Campus floor plan

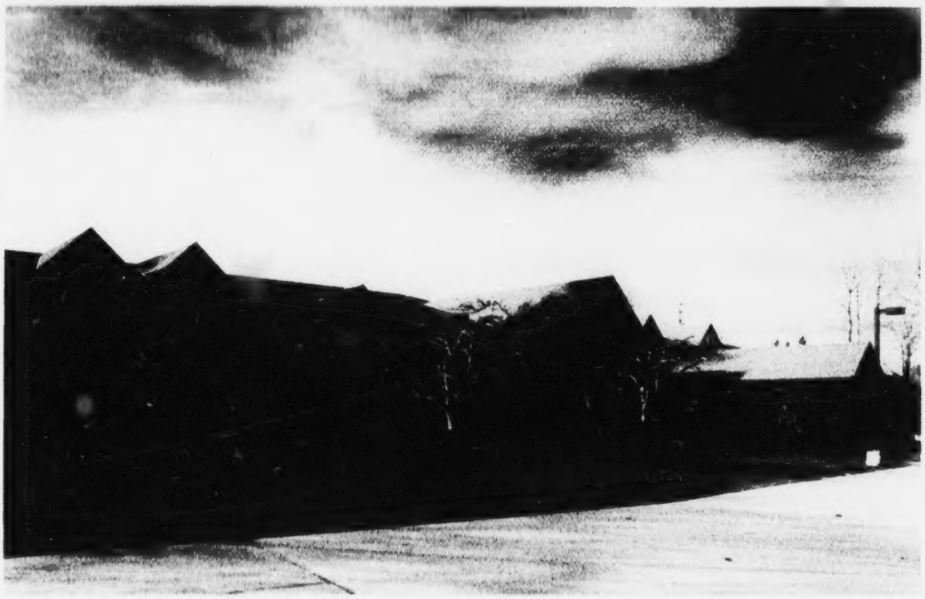
existing portables. Each classroom was provided with TV and signal, eight computer stations, and intercom/telephone. All of these systems originate at a central networking room. A second gymnasium and a physical education classroom were added adjacent to the existing gym. The music program required the most drastic changes. The existing band room, orchestra/choral room, and stage were expanded, and an additional music room was constructed.

Besides the added spaces, a new sloping roof was built over the existing flat roof. New walls were wood-stud framing, with a concrete block veneer to match the existing CMU walls. Stucco finish was added throughout to help break the monotony of CMU. New energy-efficient windows replaced the existing band of single glazed windows.

Other problems the architects and engineers faced were exposed and rapidly deteriorating mechanical and electrical systems that ran from building to building atop walkway roofs. These unsightly lines required a great deal of maintenance. The existing electrical service was also severely undersized and required updating to meet current and future technology demands.

The existing unit ventilators in each room were replaced with centralized hydronic heating units located in the attic. The attic provided a place for all new electrical system runs, new plumbing system piping, and the new mechanical system and ductwork.

A careful partnership between school district, architect, building department, and contractor enabled this fast-track schedule to succeed. Through limiting areas of work around the students and double-shifting work crews, the contractor got a jump on the schedule. During summer vacation the contractor was able to take over the whole campus. ■



Exterior

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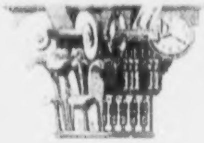
MIDDLE SCHOOLS
Renovation/Addition



LEBANON INTERMEDIATE SCHOOL
LEBANON, OHIO

Steed Hammond Paul Inc.

Steed Hammond Paul Inc.
82 Williams Ave.
Hamilton, OH 45015
(513) 863-5441

Design team
Michael P. Dingeldein, AIA
Project Architect/Designer
Patricia Sumner
Project Interior Designer
Mel Pike
Project Construction Administrator

Client
Lebanon City School District
(513) 932-0999

Grade span
4-5

Current building capacity
780

Current building area
72,400 square feet

Total project costs
$5.2 million

Cost per square foot
$72

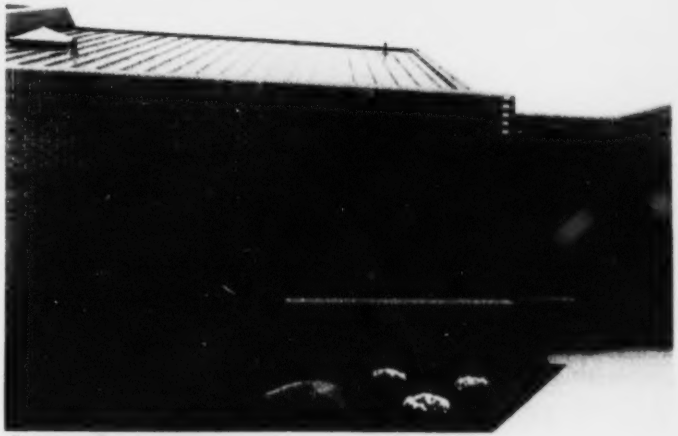
Space per student
93 square feet

Cost per student
$6,693

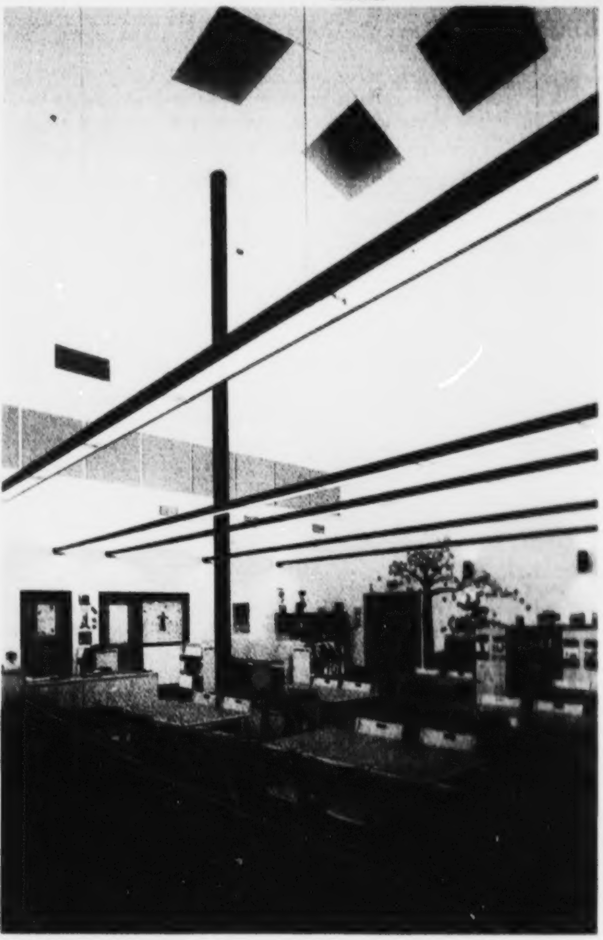
Completion date
August 1994

This project incorporates Steed Hammond Paul's consensus-building process called the Schoolhouse of Quality (SOQ). This process is the basis for a pursuit of world-class educational facilities through its ability to collectively tap the knowledge, creativity, and enthusiasm of students, teachers, parents, staff members, board members, and the community at large to bring unique value-driven design solutions to the school district and the community.

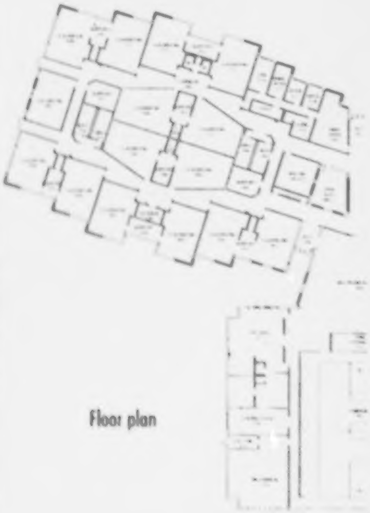
The concepts developed during the SOQ planning meetings were, at times, unpredictable to the architects, but that was the idea—to build a school based on the values of the community, not the designers. One particular value identified was the desire for greater parent involvement in the educational process. One of the architectural solutions resulting from



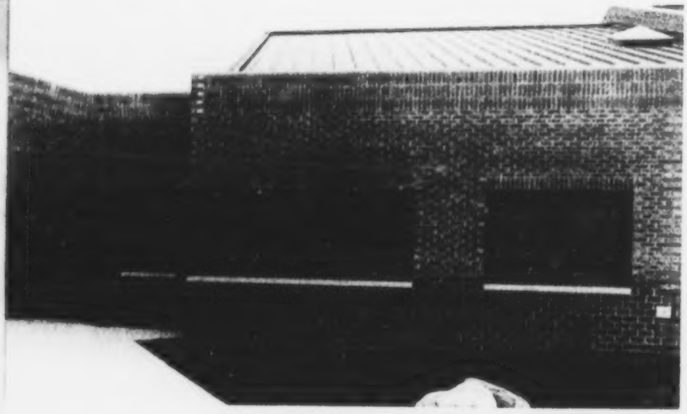
Entrance



Media center



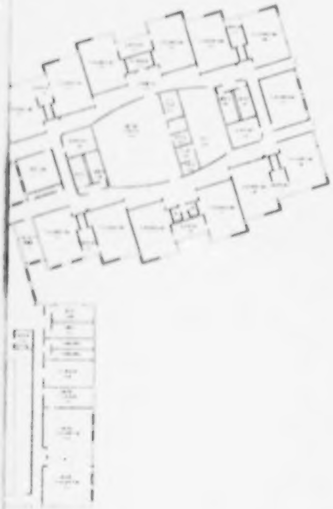
Floor plan



Cafeteria/multipurpose room

this value was a parent-visitor welcome center. Flexibility of the facility to adapt to curriculum, incorporation of a wide range of computer technologies, and community use of the facility all developed from community values to coordinated architectural solutions.

Participants in the school and community activities now take pride and ownership in a facility that reflects their values, input, and needs. ■



Classroom corridor

Exterior

MIDDLE SCHOOLS
Renovation

NAUSET REGIONAL MIDDLE SCHOOL ORLEANS, MASSACHUSETTS

HMFH Architects, Inc.

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139

Stephen Friedlaender, AIA
(617) 492-2200

Design team
Stephen Friedlaender
Principal-in-Charge

Mario Torroella
Design Principal

Charles Plaisted
Project Manager, Design and Documentation

Richard Oja
Project Manager, Construction

Dale Leidich
Project Architect

Todd Jersey
Design Architect

Cindy Stearns
Furniture/Equipment and Casework

Client
Nauset Regional Schools
(508) 255-8800

Grade span
6-8

Current building capacity
950

Current building area
155,000 square feet

Building area before addition/renovation
105,000 square feet

Total project costs
$14.9 million

Cost per square foot
$96

Space per student
163 square feet

Cost per student
$15,302

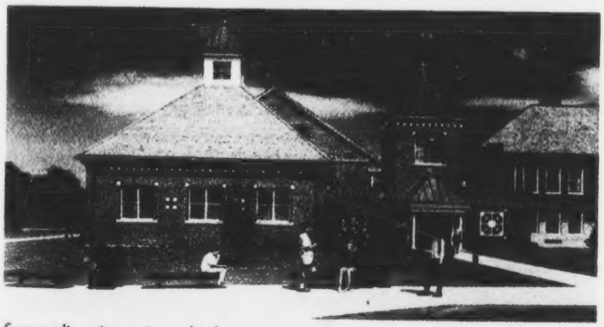
Completion date
April 1993

This regional school district decided on a program of renovations and additions to its existing middle school to address serious overcrowding and inadequate classroom and core facilities. The existing complex consisted of a 1937 neo-classical high school and a major addition of two classroom wings built in 1959. Both buildings needed major renovations and repairs to bring them to current standards.

To create the classroom space and core facilities necessary for the burgeoning enrollment, a 600-seat auditorium, a library/media center, and an additional gymnasium were added, along with nine new classrooms, shops, art studios, computer labs, science labs, and music facilities.

As part of the extensive renovations, the 1937 structure was gutted to the building envelope and outfitted with new partitions, finishes, and mechanical systems. The 1959 building was stripped to the superstructure and entirely rebuilt. A new industrial arts area was located beneath the classrooms in the new additions, and a new cafeteria was added and the full-service kitchen expanded to serve the increasing population.

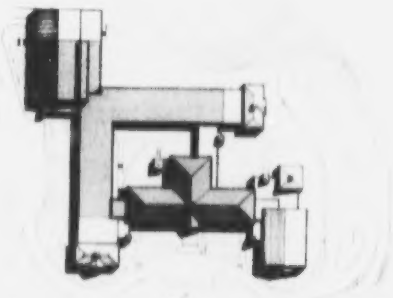
Placing the newest classroom additions, with their pitched slate roofs and cupolas, at the exposed ends of the 1959 structure transformed the two unrelated buildings into a coherent architectural complex. The contemporary red brick walls and white decorative trim echo the materials of the older building, while the green and white tile "frieze" adds a whimsical contemporary touch. ■



Community entrance to music wing

Auditorium

Main corridor in original building



Site plan

Band room

MIDDLE SCHOOLS
New Construction

O.S. STAPLEY JUNIOR HIGH SCHOOL MESA, ARIZONA

BPLW Architects & Engineers, Inc.

BPLW Architects & Engineers, Inc.
49 W. First Street, Suite 100
Mesa, AZ 85201

Ronald L. Peters, AIA, AICP
(602) 827-2759

Design team
Ronald L. Peters, AIA, AICP
Principal-in-Charge

Gary A. Kabobel, AIA
Project Architect

Karin Pitman, AIA
Project Architect

Carl Jordan, AIA
Patrick S. McGee, AIA
Allison Hosking-Suriano, AIA
Ralph Cornejo
Production Team

Larry Summers
Construction Observer

Client
Mesa Public Schools
(602) 898-7700

Grade span
7-9

Current building capacity
1,500

Current building area
167,000 square feet

Total project costs
$11 million

Cost per square foot
$70

Space per student
111 square feet

Cost per student
$8,000

Completion date
August 1994

Floor plan

The lifestyle of Mesa residents is based upon activities in the home with the family, church, or outdoor social activities based upon the use of school baseball fields and gym facilities. There is an increased emphasis on the needs of the adult community and a demand from the public for evening classes in all areas of the curriculum.

The curriculum provides learning experiences in all ordered areas of man's knowledge yet permits the student options and choices about the depth and diversity of his interests. It provides experiences broad enough to permit the student to take full advantage of career opportunities available to him in the community or in Arizona.

The junior high school offers the student not only the basic courses in English, mathematics, social studies, language arts, and sciences but also a variety of exploratory courses. These include music, industrial arts, arts/crafts, business, agriculture, and physical education. Remedial reading and alternative methods of instruction must be available to all students.

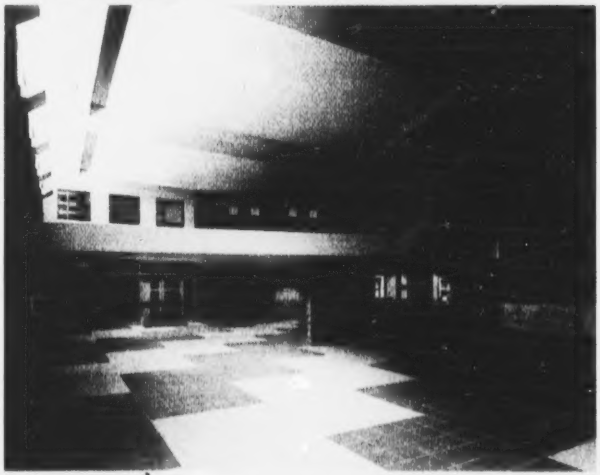
Each learning area accommodates students from ages 11 to 14. The organizational pattern for their activities provides for diversity in ages as well as instructional patterns. Teachers teach a five-period day so it is necessary to provide office space for the teacher during preparation periods. Classrooms are planned to be in use six periods per day when the enrollment reaches 1,500 students.

The overall design scheme reflects the local influence of the Hohokam Indians who settled in the Mesa area. Desert colors are reflected in stucco finishes, and a courtyard created by various structures remembers the ceremonial courtyards of the large Hohokam villages. Exterior classrooms are supplemented with natural light through windows of various sizes and heights to control sun and provide a varied elevation. Pre-cast Indian characters are featured throughout the school as highlights. ■

Aerial view from southwest

Exterior of arts department

Media center



Interior

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MIDDLE SCHOOLS
New Construction

NEW FAIRFIELD MIDDLE SCHOOL
NEW FAIRFIELD, CONNECTICUT
Anderson La Rocca Anderson

Anderson La Rocca Anderson
22 Purchase Street
Rye, NY 10580

Steven La Rocca
(914) 967-3494

Design team
Steven La Rocca, AIA
Partner

Barbara Anderson, AIA
Partner

Allan Anderson, AIA
Partner

Farley S. Baker, AIA
Project Manager

Kenneth Bond
Project Designer

Wayne Bohn
Project Designer

Werner E. Tietjen
Mechanical and Electrical Engineer

Arne Thune
Structural Engineer

Don Gormley
Photography

Client
New Fairfield Board of Education
(203) 746-1842

Grade span
6-8

Current building capacity
600

Current building area
90,000 square feet

Total project costs
$12 million

Cost per square foot
$125

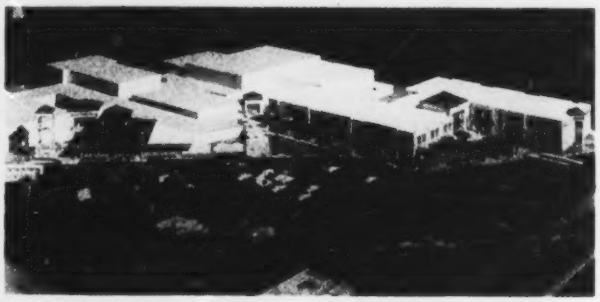
Space per student
150 square feet

Cost per student
$20,000

Completion date
September 1995

A new middle school built at the high school site solved problems of districtwide overcrowding; a decade of double sessions for the combined high school and middle school; and inadequate libraries, science labs, and gym facilities. Project requirements included 33 grade-level classrooms, maximum space at moderate cost, support spaces available for community use, and improved appearance of the existing high school.

Site design, signage, building forms, and roof lines all emphasize the three separate entrances and identities of high school, middle school, and community facilities. Landscaped plazas provide buffers from parking and service areas. The clock tower and red pyramid roofs provide visual focal points.



Model

The middle school program is enhanced by color-coded wings for each grade level; complete voice, video, and data wiring linked with the high school; fully equipped science, art, music, and technology facilities; and classrooms, stairs, and support spaces designed for good circulation and flexibility.

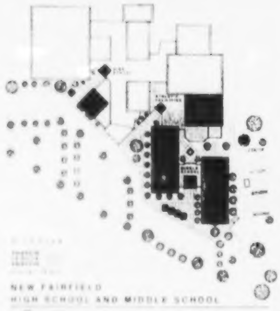
Siting the new middle school adjacent to the high school permits both programs to share the existing pool, auditorium, library, kitchen, and fields. The gym, music, art, and sophisticated technology lab are located for easy after-hours access and use by the community. Moving Grades 7 and 8 from the high school and Grade 6 from the intermediate school provided needed space at those other buildings.

The students enjoy the bright, visually interesting in-

Cafeteria

Exterior

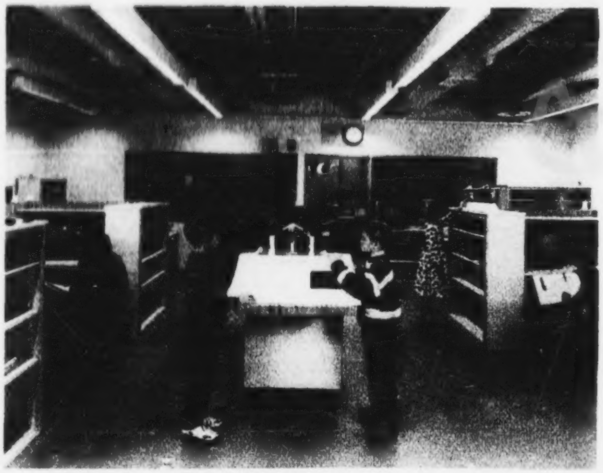
teriors; the staff appreciates increased space, improved equipment, and good layout; and the community is pleased with educational, recreational, social, safety, and aesthetic improvements. All were achieved on schedule at moderate cost thanks to the dedication and teamwork of administration, building committee, construction manager, and the architect's design team. ■



Site plan

Science lab

Music room



Tech lab

MIDDLE SCHOOLS
New Construction

NEW WINDSOR MIDDLE SCHOOL
NEW WINDSOR, MARYLAND
Smeallie, Orrick and Janka, Ltd.

Smeallie, Orrick and Janka, Ltd.
5820 York Road
Baltimore, MD 21212
John R. Orrick
(410) 433-4600

Design team
Whitney, Bailey, Cox & Magnani
Civil Engineer
Whitney, Bailey, Cox & Magnani
Structural Engineer
Schlenger/Pitz, Inc.
Mechanical/Electrical Engineer

Client
Carroll County Public Schools
(410) 751-3000

Grade span
6-8

Current building capacity
500

Current building area
83,000 square feet

Total project costs
$8.1 million

Cost per square foot
$97

Space per student
138 square feet

Cost per student
$13,480

Completion date
July 1995

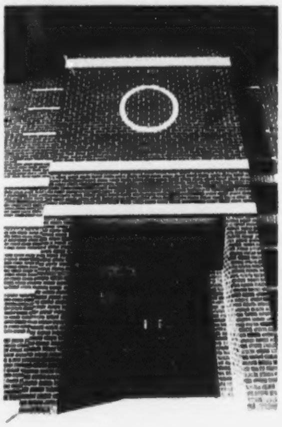
Site plan

The middle school years are a transitional period of growth and development, both mentally and physically, for students as they leave elementary school and prepare for high school. The middle school program should instill in students a confidence that they are able to learn, that they know how to learn, and that learning is worthwhile. To achieve this, a program has been designed to accommodate the developmental characteristics and unique needs of these students. It must consider the social, physical, psychological, and intellectual development of each child.

■ Design—Smeallie, Orrick and Janka, Ltd., designed flexibility into the school plan, including four instructional team pods (math, social studies, reading, language and science). A two-sided stage opens to the cafeteria and gymnasium to accommodate small or large groups. Special education and computer classrooms are included.

■ Classroom Furniture—Classroom furnishings were selected to provide flexibility in classroom arrangement, storage, and teaching methods. Of particular concern was the integration of technology into the classroom and identifying furniture to support changing instructional styles.

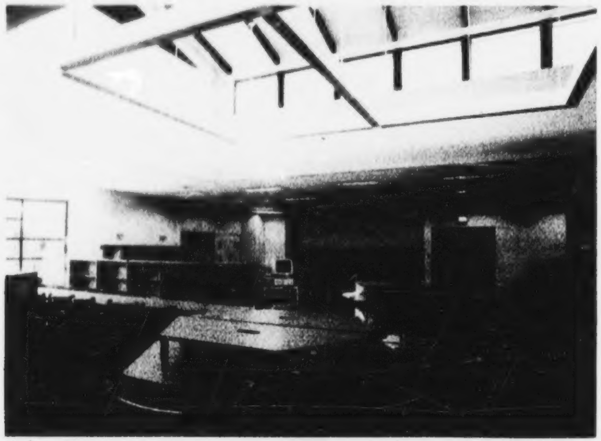
Exterior



Typical entry

■ Computer Hardware—Administrative, instructional, and media functions originate from a Novell Ethernet local area network established in a 10-base "T" configuration. Two hub locations to a fiber-optic backbone support this topology. Each classroom, planning area, and administrative area contains at least one drop, allowing retrieval of administrative information, instructional software, and various media from these locations.

■ Construction Materials—These include concrete, masonry, and structural steel framing. The HVAC has oil-fired, hot-water boilers; a roof-mounted, central station; and air handling units with chilled-water cooling coils. ■



Media center

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MIDDLE SCHOOLS
New Construction

REED CITY MIDDLE SCHOOL
REED CITY, MICHIGAN
Wakely Associates Mt. Pleasant, Inc.

Wakely Associates Mt. Pleasant, Inc.
131 S. Main Street
Mt. Pleasant, MI 48858

John P. Jensen, AIA
(517) 773-9945

Design team
John P. Jensen, AIA
Principal-in-Charge of Design
Harold M. Boog, AIA
Project Architect
John E. Haas, AIA
Associate Designer
Earl G. Hartman, Jr., PE
Mechanical Engineer
MacMillan Associates
Structural Engineers
William A. Rutter, RA
Site and Landscape Design

Client
Reed City Area Public Schools
(616) 832-2201

Grade span
6-8

Current building capacity
525

Current building area
68,500 square feet

Total project costs
$4 million

Cost per square foot
$59

Space per student
130 square feet

Cost per student
$7,634

Completion date
May 1993

Entry

Joint use media center

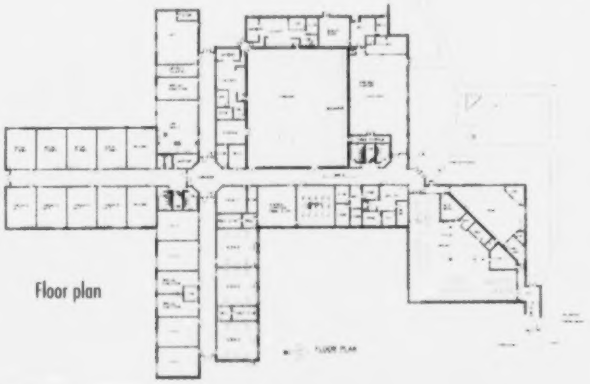
The project involved the planning and development of a new 68,500-square-foot facility for 525 students in grades 6, 7, and 8 to replace an aging and functionally deficient junior high building. The new facility was designed for flexibility, expandability, and energy conservation while providing functional, specialized educational spaces and accommodating computer and tele-media technologies. The building features a sloped-roof design and aesthetic treatment of the exterior with synthetic plaster, poured concrete, and multiple bands of brick masonry. The project includes extensive site work and paved parking for buses, staff, and visitors.

This facility comprises a gymnasium, cafeteria, kitchen, music room, computer lab, and 23 classrooms. The latter include an art room, life-skills lab, four science labs, and individual spaces for special education, Chapter I, and gifted and talented programs. The facility also features a 6,600-square-foot shared media center connected to the existing high school building.

Administration spaces accommodate the general office, principals, and counselors and are located to provide optimum supervision of the building.

The new media center features technologically enhanced distance learning, media retrieval, and indirect lighting; it is designed to serve the adjacent high school as well as the new middle school. This dual function employs savings and efficiency in equipment, building, and staff.

This project provided a unique opportunity to compare structural system costs. The architect researched design options comparing the common design assumption that the cost of a wood-truss roofing system with shingles is significantly less than a simplified steel joist and membrane roof system. The steel and membrane system was actually shown to be more cost-effective in comparison and was fully employed throughout the project. ■


Floor plan

MIDDLE SCHOOLS
Renovation/Addition

SAGE PARK MIDDLE SCHOOL
WINDSOR, CONNECTICUT
The S/L/A/M Collaborative/Russell Gibson von Dohlen

The S/L/A/M Collaborative/
Russell Gibson von Dohlen
281 Farmington Avenue
Farmington, CT 06032
Roy E. Cook, AIA
(860) 677-8556

Design team
Roy E. Cook, AIA
Principal-in-Charge
Christopher D. Williams, AIA
Project Designer
Mark Tassinari
Project Architect
Karl Frey, PE
Structural Engineer
Robert F. Longfield, Jr.
Landscape Architect
Bradford D. Anderson
Construction Administrator
Janice K. Lintner
Interior Design
BVH Engineers, Inc.
Mechanical/Electrical Engineers
John T. Callahan & Son
Contractor
Steve Lakatas
Photography

Client
Windsor Public Schools
(860) 688-3631

Grade span
6-8

Current building capacity
1,200

Current building area
175,000 square feet

Building area before addition/renovation
115,000 square feet

Total project costs
$7.1 million

Cost per square foot
$41

Space per student
146 square feet

Cost per student
$5,917

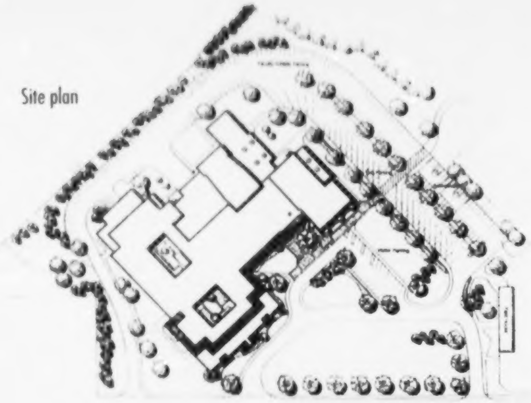
Completion date
September 1993

The driving forces behind the new addition and overall improvements to Sage Park School were the need to add 400 sixth-grade students to the existing seventh and eighth grade population and to create a middle school from this 1960s junior high school. Program elements of the project required the 1,200-student middle school to be planned around the team teaching concept and also provide for unified arts.

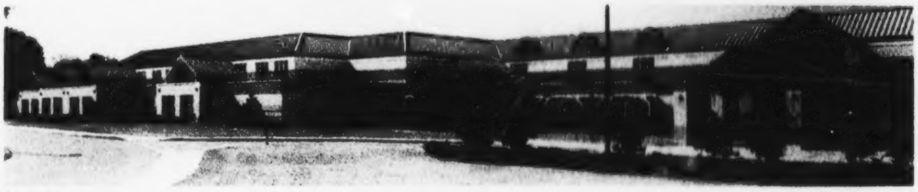
The architect's challenge lay in incorporating all the program elements, improving and upgrading the existing 115,000-square-foot building, and designing a new addition to enhance the school's image.

The solution is a 60,000-square-foot, two-story, steel-frame addition—located in front of the existing building—that creates a distinctive entrance. The existing school and addition groups the three grades into separate learning clusters, provides faculty planning areas for teaching teams within each cluster, and includes a unified arts cluster. The addition also houses a 7,200-square-foot media center, gymnasium, and relocated administration and nurse's offices. Improvements to the existing building include new auditorium seating and air conditioning, code compliance, modernization of science laboratories and industrial arts rooms, and improvements to finishes and lighting. ■

Entrance


Site plan

Food lab


Overview

MIDDLE SCHOOLS
Addition

SILVER CREEK MIDDLE/HIGH SCHOOL
SILVER CREEK, NEW YORK

Habiterra Associates

Habiterra Associates
1279 N. Main Street
P.O. Box 609
Jamestown, NY 14702

Paul R. Hedin, AIA
(716) 664-4710

Design team
Paul R. Hedin, AIA
Project Architect

Edward C. Hanson, Sr.
Project Coordinator

Wilson, Klaes, Brucker & Worden, PC
Mechanical/Electrical Engineers

Structural Engineering Corporation
Structural Engineers

Client
Silver Creek Central School
(716) 934-2603

Grade span
6-12

Current building capacity
225

Current building area
16,420 square feet

Building area before addition/renovation
170,472 square feet

Total project costs
$1.5 million

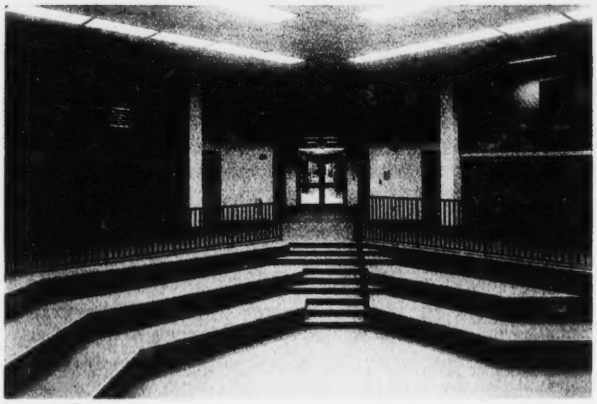
Cost per square foot
$92

Space per student
73 square feet

Cost per student
$6,724

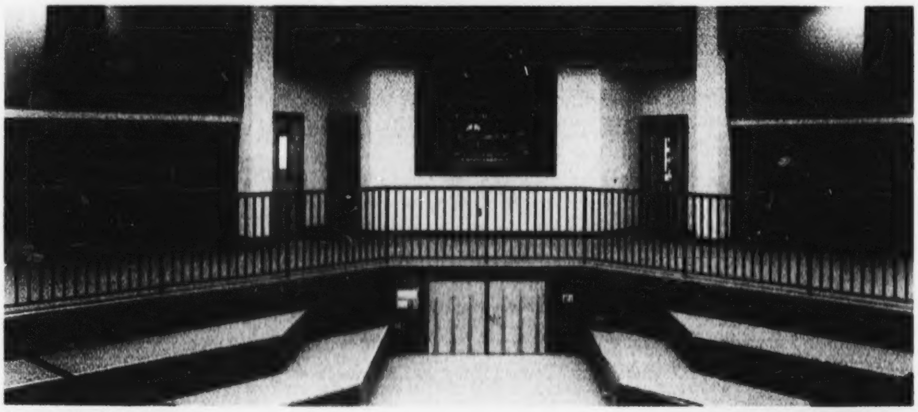
Completion date
September 1995

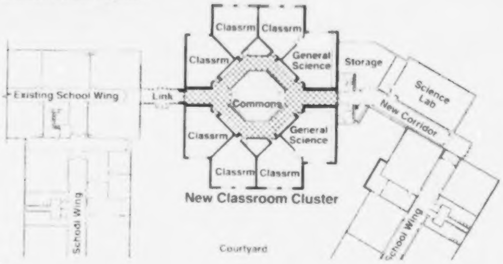
The latest addition to Silver Creek Central School could have followed a Hollywood script. During a lunch meeting, the architect and administrators brainstormed how best to accommodate a desire to break the mold of a four-corner, four-wall classroom. At the same time, the rapidly expanding computer and media technology learning opportunities within the school needed to be more easily integrated into the curriculum.


Commons East

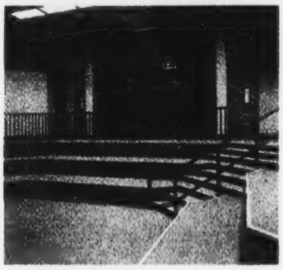
An initial concept of a five-sided, five-corner classroom configuration wrapping around a central, multitiered commons and linking two existing classroom wings was sketched out on a dinner napkin. Refinements were developed through on-site committee meetings and eventually adopted by the school board.

Once construction was completed, the educational opportunities were apparent to all. The classrooms allow a variety of seating configurations and "special interest" corners. The commons, with its rear-screen projection monitors and "surround sound" audio system, fosters collaborative teaching between classes. Compelling learning experiences utilizing the best in multimedia, on-air broadcast, distance learning, and computer generated formats are now an integral component of the normal class day. ■


Commons South (rear screen)



Floor plan


Commons North

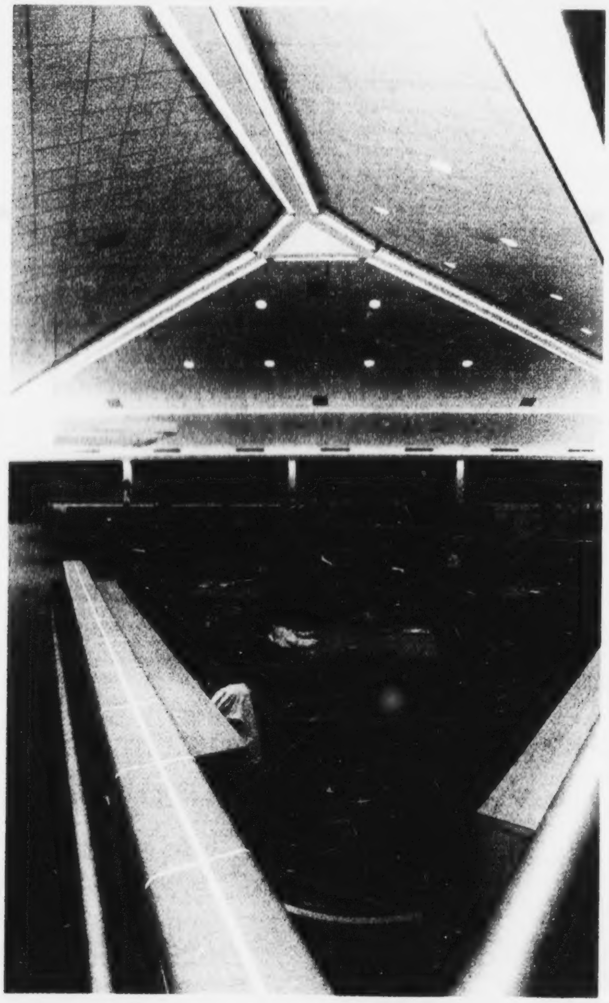
GUARANTEES FOR GROWTH

By Mark Ward, Sr.

Performance contracting offers schools a way to install building equipment that improves energy and operating efficiency—and fund it through savings the equipment generates.

The Delano (Minn.) School District has faced tight budgets, a growing backlog of deferred maintenance, and parental complaints about uncomfortable classrooms. But Superintendent Jim Toole has found an answer—and so far it hasn't cost him a dime.

In 1989, the state of Minnesota, with the support of educational associations, amended its procurement law to permit "performance contracting." This innovative approach lets schools install new equipment that improves energy and operating efficiency, and then fund it directly from the savings generated.



Three years ago, Toole signed an agreement with an energy service company (ESCO), one of a growing number of national firms that offer performance contracting to school districts. The firm guaranteed that by installing the recommended equipment Delano would obtain annual energy and operational savings of $72,673 over a 10-year period. Under the agreement with this ESCO, if the savings weren't realized the ESCO would annually refund the shortfall to the district.

"Based on the audit results," Toole reports, "the program is meeting our financial objectives and helping us balance our budget during difficult economic times." With three schools serving 1,500 students, Delano School District has used the monies saved to install temperature controls, lighting retrofits, new boilers, variable speed fan drives, mechanical repairs, and cafeteria

CRISIS-FREE MAINTENANCE

At the Houston (Texas) Independent School District—the nation's fifth largest system with 198,000 students—Facilities Manager Joyce Moss-Clay installed a computerized maintenance planning and control (MPAC) system two years ago. "It incorporates an automated work order system for all maintenance needs," she explains, "dramatically shifting the maintenance [department] from a reactive and emergency mode to a planned and preventive mode."

According to Moss-Clay, Houston's MPAC system features seven modules—stores, maintenance, advanced security, tool control, interface tools, project tracking, and project planning and scheduling. The district employs more than 1,000 maintenance personnel who oversee 244 buildings, 20 million square feet of classroom space, and a fleet of 600 service vehicles and 1,025 buses.

Annual savings of $2.2 million have been realized, Moss-Clay reports, by systematic maintenance, reduced paperwork, and preventing crises before they happen. Since the MPAC system paid for itself the first year, operational savings can now be applied toward facility upgrades and equipment or educational needs.

The magnitude of the maintenance task—and the opportunity for automation—is further illustrated by Memphis (Tenn.) City Schools. During the 1994-95 school year, the district's maintenance department received an average 3,033 service requests per month. Altogether the office initiated more than 31,000 work orders during the year.

Superintendent Gerry House teamed with a facilities maintenance contractor and, with the help of computerization, achieved a completion rate of 85 percent—including the repair of more than 20,000 window panes over the past two years. By taking a proactive approach to maintenance, she says, "The morale of employees has improved tremendously and my kitchen retrofits.

"We now have a handle on controlling our buildings and are seeing a drop in comfort complaints," adds Toole. All positive cash flow is being put into educational purposes, and the superintendent is especially gratified that performance contracting has brought his schools a long-term solution.

Though Delano is a rural community, he notes Minneapolis is just 45 miles away and the district must brace for growth.

Since state law opened the way for performance contracting, other districts also have benefitted:

- At Dawson-Boyd School District, which serves 750 students and is located about 100 miles west of the Twin Cities, Superintendent Brad Madsen reports yearly energy and operational savings of more than $100,000 through a recent performance-based contract with a national ESCO. Savings are being used to cover ongoing service and retrofit costs.
- In rural northern Minnesota, Grand Rapids Public School District has 11 buildings spread over a large area—making it hard for staff to detect and respond promptly to equipment emergencies. However, the district has been guaranteed $446,616 a year in savings from the ESCO it hired in 1992. Lighting, temperature, and mechanical systems have been retrofitted and connected to a central monitoring system.

"We could never have accomplished in five years, on our own, what was done to improve our buildings in just one year," reports Ben Hawkins, assistant superintendent for finance and operations.

- Not only have Spring Lake Park Schools generated enough savings to afford needed equipment upgrades, but the district—in its first year of a performance contract—also earned an energy rebate of $71,402 from Northern States Power for reducing power plant demand.

"Like other districts, ours is beset by growing financial limitations," remarks Superintendent Chris Huber, who oversees six schools with 4,000 students. "The time was right for upgrading our systems, and we were pleased to discover this new source of funding."

- Minneapolis Public Schools have installed lighting retrofits and heating, ventilating, and air-conditioning (HVAC) improvements in 67 buildings through a guaranteed performance contract with an ESCO. Savings of $45 million over 10 years are projected as efficient classroom lighting improves illumination for students and cuts power plant demand.

"It will benefit the district financially through energy savings," says Superintendent Peter Hutchinson, "while helping to curb air pollution in our community."

Widespread use

While upgrades and improvements are unique to the needs of each school district, the success of performance contracting is not unique to Minnesota. Detroit Public Schools, for example, are expecting to save $2.7 million over 10 years from a perfor-

. . . AND SAVINGS

principals are saying they can now refocus on educational needs."

"Every paper transaction you make wastes dollars that could go to the classroom," remarks Allen Winder, director of public services for J.D. Edwards & Co., a Denver-based software provider experienced in working with school systems. "The solution is to let the data, rather than the people, do more of the interacting."

Winder explains that organizations traditionally employ a series of paper transactions that are processed sequentially; for example, a work order is handed from one person to the next, down the chain of affected offices. The previous generation of school software, he points out, simply put this sequential process on computers.

"Today's technology eliminates the paper trail and makes the sequence happen automatically—both vertically and horizontally," Winder says. "So if someone needs a spare part, the computer system can automatically check the inventory, order additional parts if the stock is low, make sure the mechanic is certified, and use the data to help predict when that part should be serviced or replaced in other pieces of equipment."

Before, each of these steps would have required a separate paper transaction involving at least two people. By automating the entire sequence, Winder says the North Star Borough School System, Fairbanks, Alaska, saved $400,000 per year and hired six new teachers.

Bigger schools, greater savings

"So far the system has worked best for school districts that have diverse equipment, are geographically dispersed, and have at least 50 to 100 maintenance staff," suggests Chet Talley, director of the public sector group for TSW International, Atlanta, which installed the MPAC program for Houston public schools. "But there also are vendors with PC-based solutions for smaller districts."

Talley estimates that some 200 companies offer computerized maintenance programs for schools, from "mom-and-pop operations on up." However, he reports only a limited number of vendors are active on a national basis and able to serve large school systems. Winder agrees and puts the number of major vendors at "probably three or four, with the rest being regional players."

Executive Director Larry Fenster of ServiceMaster, Downers Grove, Ill., says school districts "have a lot of software to choose from, but it doesn't ensure that you can do a computerized maintenance program. It's like having a word processing program. You have the software, but does that mean you can write a novel?"

The challenge is "bringing it all together," adds Fenster. ServiceMaster also offers schools the option of contracting out their maintenance, grounds, and facilities management.

"There's a difference between outsourcing and outtasking," Fenster continues. "Outtasking is when you contract with a company for a specific project, such as hiring a janitorial firm to clean floors. Outsourcing is a partnership where you and the contractor make a common goal and look at the big picture of the entire physical plant."

Finally, Moss-Clay points out a significant spin-off benefit realized from installing her district's maintenance planning and control system. "The training received by district employees," she concludes, "has given them the chance to develop skills that will ensure their ability to use technology of the present and the future."

—M.W.

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mance contract signed in 1993. In Parma (Ohio) City Schools, Business Manager Ken Brand notes the suburban Cleveland district saved taxpayers $300,000 and cut pollutant emissions by nearly half.

School Superintendent Joseph Lavorgna of Charles County, Md., was guaranteed $468,232 in annual savings by his district's performance contract—an amount exceeded by $3,000 the first year, $25,000 the second year, and a projected $190,000 the third. And in Presque Isle Schools, located at the northern end of Maine, 2,400 students are enjoying more comfortable classrooms, and district administrators are enjoying $44,663 of savings surplus after two years of the performance contract.

Concepts for contracts

Aging equipment and deferred maintenance are ticking time bombs for the nation's school districts. The U.S. General Accounting Office reports that one third of America's schools need "extensive" repair. Nearly 60 percent have at least one major building feature in significant disrepair, and 41 percent suffer from unsatisfactory energy efficiency.

Those findings aren't surprising. In fact, a 1991 study by the American Association of School Administrators showed that three fourths of U.S. schools were built more than 25 years ago.

"Back then, the need for new schools required fast-paced construction, and little attention was paid to energy and operational efficiency," points out Bob Smith of Honeywell School Services, Minneapolis, which has performed contracts for more than 1,000 districts around the country. "But because school boards and administrators do not have the resources to budget for proper maintenance, even newer facilities can fall into the major capital fix-up category."

Smith describes guaranteed performance contracts as "self-funding programs that leverage money saved on energy and operating costs to pay for the required building improvements. The performance contractor usually arranges financing, most often through a lease-purchase agreement. School officials in effect pay for the building improvements and financing fees out of their current operating budgets."

The approach offers an alternative to the traditional specification and bidding process, Smith continues, by instead "holding the ESCO accountable for performance. If the guarantee isn't met, the contractor pays up." In addition, he points out, once the guaranteed savings amount is reached any surplus funds are retained by the district to be used for other needs.

To those who suggest performance contracting circumvents competitive bidding and cuts out small vendors, Smith replies, "In most cases performance contractors submit detailed proposals to school boards, who select the best organization to meet their needs." Most, if not all, large ESCOs subcontract work to smaller local firms, he adds, though "all subcontracted work is the responsibility of the performance contractor."

Indeed, much of the value a performance contractor brings to the job "is the ability to link our customers to a network of people who know how to make buildings operate efficiently while improving a facility's infrastructure and providing long-term savings," explains Chuck Hall, K-12 Manager at Landis & Gyr Powers Inc., Buffalo Grove, Ill., which serves school districts nationwide.

Hall describes six steps in performance contracting—assessing needs, analyzing current conditions, reviewing energy expenses, conducting an energy and operational audit, implementing an upgrade plan, and providing long-term training and support for school staff.

"In many cases, a 25 percent savings is realized" in energy and operational costs, concludes Hall, and these savings "make performance contracting a self-funding, positive cash-flow producing program."

Shirley Hansen, president of the consulting firm Hansen Associates, Annapolis, Md., states that energy savings of 25 percent are a typical benchmark. "One way to think of performance contracting," she explains, "is to imagine what could be done if 25 percent of your utility bill for the next 10 years was available in cash today."

For example, a yearly utility bill of $400,000 could give a school district access to "about $1 million in new or improved equipment at no out-of-pocket expense except for administrative time," notes Hansen, author of the book *Performance Contracting for Energy and Environmental Systems.*

"However, the financing differs from a conventional installment loan in one important way," concludes Hansen. "Performance contractors guarantee the improvements they provide will supply the money to make the monthly payments." In addition, financing mechanisms have evolved since the 1980s to keep pace with changing times.

A decade ago, most performance contractors operated on "shared savings," in which they reaped a portion of clients' actual dollar savings on energy costs. But when energy prices fell in the mid 1980s, ESCOs were often unable to recoup their investments. As the business became more risky, ESCOs were charged higher interest rates by their lenders.

As a result, the emphasis in performance contracting today is on "guaranteed savings." According to Hansen, "The focus is on the energy, not the dollar, savings."

However, most school districts are attracted to the longer term solution of a comprehensive energy-saving program. Here the financing mechanisms "usually fall under some variation of guaranteed savings," notes Hansen, "which has a fixed payment structure with guaranteed energy savings. Still other variations depend upon the tax-exempt status of the customer, such as municipal leasing and tax-exempt installment/purchase."

In recent years Hansen's firm has helped set national standards for performance contracting under a federal Department of

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Energy grant, and written manuals for several state energy offices. She believes the approach is particularly suited for schools because "administrators are in the education business. Their heart is in learning and curriculum, not maintenance and engineering."

Historically, Hansen says, educators tend to put curriculum ahead of facilities and to pay utility bills by cutting maintenance. "Performance contracting offers a way," she believes, "for school districts to get their buildings in shape now—and for the long term."

For the future

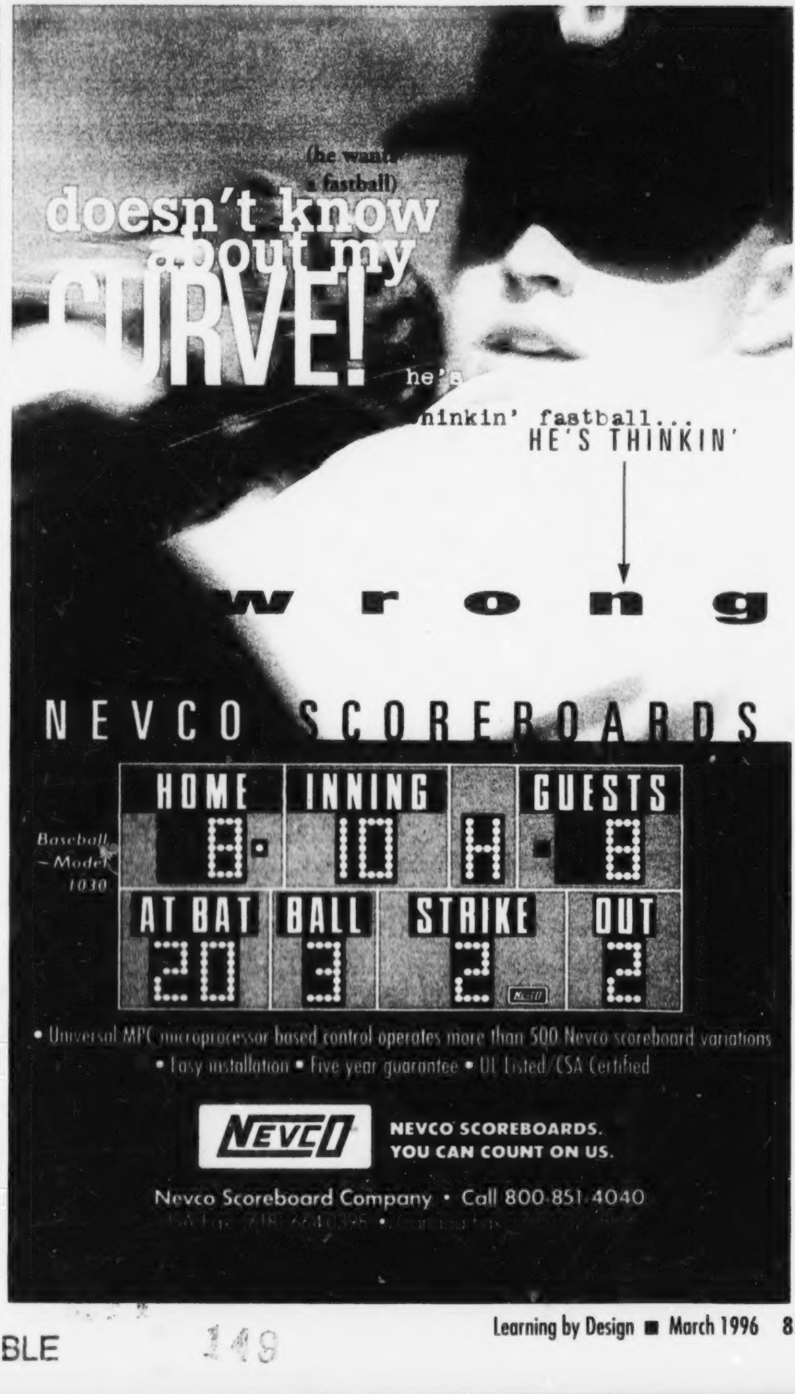
About 2,000 guaranteed performance contracts are now in place among America's schools, according to estimates cited by Tony Wall, executive director of the Council of Educational Facility Planners International (CEFPI), Scottsdale, Ariz. "It has clearly become more common in the last decade," he says, "and it's starting in Canada and Europe."

Wall believes performance contracting will continue to gain acceptance among school districts nationwide. The only barrier he sees is "competitive bidding laws in some states that won't allow the practice."

"Nationally, there are a handful of major players, maybe half a dozen, in guaranteed performance contracting," Wall continues, though more firms are involved on regional bases. Shirley Hansen also believes utility companies will become more involved in providing ESCO services over the next five years.

Can the concept of performance contracting be expanded into other school functions? Hansen thinks so, suggesting performance can be measured in such areas as bus transportation, vehicle maintenance, water usage, and wastewater treatment. "It's going to happen," she concludes, "because as performance contracting becomes more common, school districts will become better educated customers. They'll demand more, and they'll expect more." ■

Mark Ward, Sr. *is a freelance writer in Montclair, Vir*



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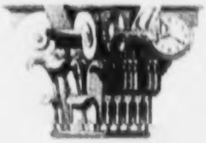
MIDDLE SCHOOLS
Renovation



1995 ARCHITECTU AWARD WINNER

WESTSIDE MIDDLE SCHOOL OMAHA, NEBRASKA

Leo A. Daly

Leo A. Daly
8600 Indian Hills Drive
Omaha, NE 68114

Thomas L. Findley
(402) 391-8111

Design team
Tom Findley
Vice President

Ron Hackett
Architect

Chris Johnson
Architect

Client
Westside Community Schools
(402) 390-6464

Grade span
7-8

Current building capacity
800

Current building area
145,170 square feet

Building area before addition/renovation
134,870 square feet

Total project costs
$5.4 million

Cost per square foot
$45

Space per student
181 square feet

Cost per student
$6,750

Completion date
September 1995 and
December 1996

Technology has transformed the focus of the educational process from what is being taught to the way it is being taught.

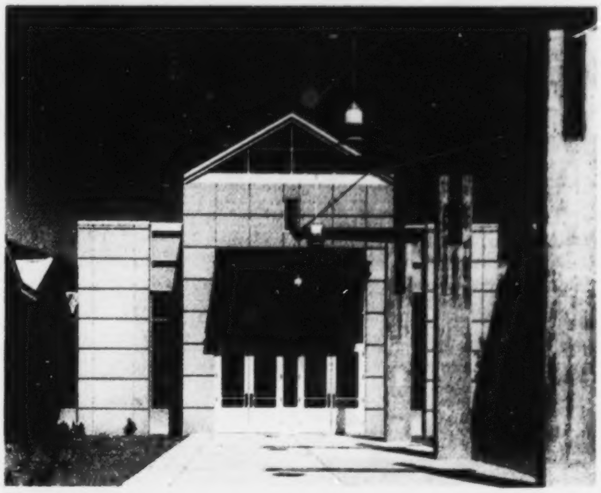
This technological transformation demands learning spaces that provide a dramatically new and different physical environment.

Housed in a 40-year-old facility, Omaha's Westside School District (District 66) committed its administration, faculty, and students to meeting the challenges demanded by this transformation. The solution is reflected in the phased 140,000-square-foot renovation of the district's middle school, which houses seventh- and eighth-grade classes from five K-6 feeder schools. The approach taken is tri-fold: a thematic curriculum, a new delivery and management system through extensive use of technology, and the expansion of its user-population to include the community at large.

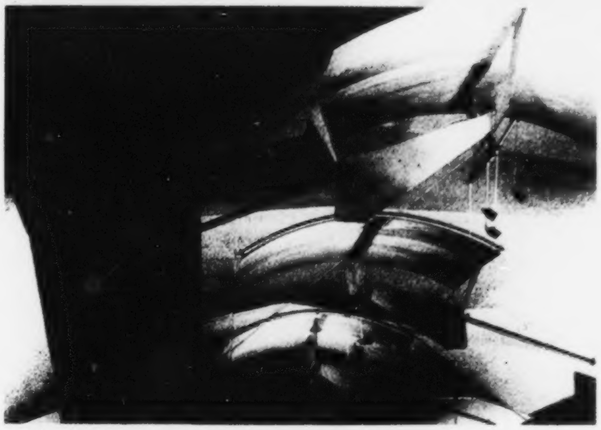
The district recognized the necessity of providing a unique architectural physical environment. The challenge is creating a responsive environment to accommodate, illustrate, and encourage the approach. This challenge was met by placing key elements throughout the existing facility, changing its personality.

Designed around four academic "houses," a new media center that serves as a "hub of technology," and a state-of-the-art networking system, subject matter and resources are brought together. Each "academic house" integrates math, science, English, and history classes around a futuristic "discovery center" or technology resource hub.

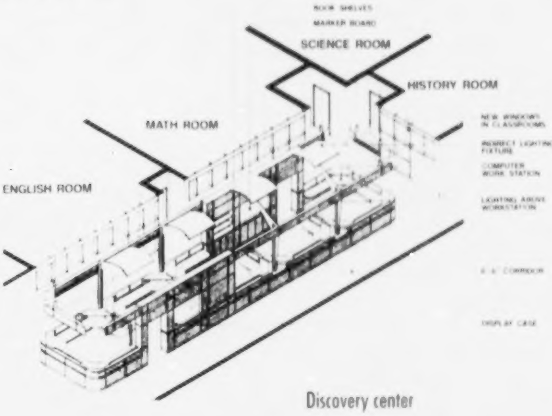
These discovery centers function as localized extensions of the media center. Each discovery center, designed as a "space ship for information navigation," provides a variety of multimedia delivery devices to help make connections between theory and subject matter. Other key elements in the renovation are the development of a combined technology exploration and family-living curriculum, several presentation



Entry



Light fixtures designed to minimize glare on computer screens



Discovery center

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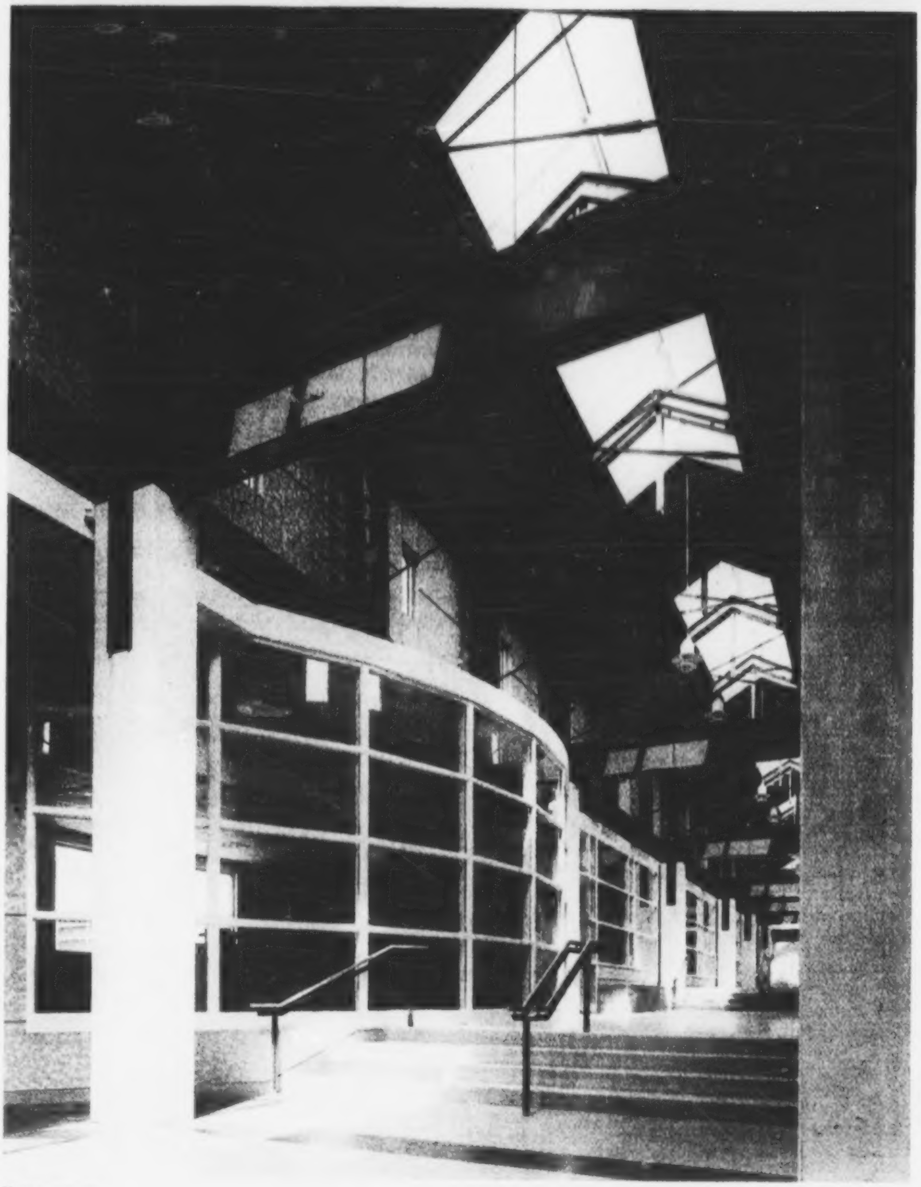
areas, and a new commons that fills an existing empty courtyard and ties together the existing facility.

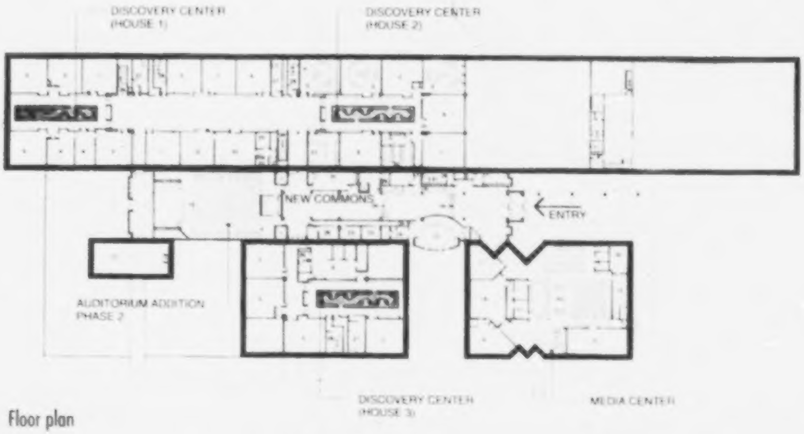
In keeping with a responsive design, the architecture becomes the element that sets the mood for an interactive learning environment. Materials are expressed and reflect their intended uses. Connections between areas are expressed to provide rhythm and identity throughout. Lighting is the element of definition, with the utmost attention given to areas where daylight is introduced and computer screen usage is extensive. The typical workstation is designed to foster creativity and interaction between students. The new commons and entry provide elements for the community to recognize and easily access.

At Westside Middle School the mission is to provide a quality, success-oriented program for students through a caring school/family/community partnership. The renovated facilities provide an exciting new environment designed to stimulate such a partnership to meet the demands of today's technological revolution. ■

Arbor Street entry



New commons


DISCOVERY CENTER (HOUSE 1)
DISCOVERY CENTER (HOUSE 2)
NEW COMMONS
ENTRY
AUDITORIUM ADDITION PHASE 2
DISCOVERY CENTER (HOUSE 3)
MEDIA CENTER

Floor plan

MIDDLE SCHOOLS
New Construction

WILSON MIDDLE SCHOOL
MUNCIE, INDIANA
Fanning/Howey Associates, Inc.

Fanning/Howey Associates, Inc.
540 E. Market Street
Celina, OH 45822

Steven P. Heitkamp, AIA
(419) 586-7771

Design team
Thomas J. Dunwoody, AIA
Principal-in-Charge

Steven P. Heitkamp, AIA
Project Manager

Randall L. Sprunger, AIA
Project Co-Designer

Robert L. Elwer
Project Co-Designer

Stephen L. Hopf
Mechanical Designer

James F. Tolan
Pool Designer

Sandra M. Kate
Loose Equipment/Colors

Alvaro Villalta
Technology Design

Client
Muncie Community Schools
(317) 747-5205

Grade span
6-8

Current building capacity
1,100

Current building area
213,220 square feet

Total project costs
$21.54 million

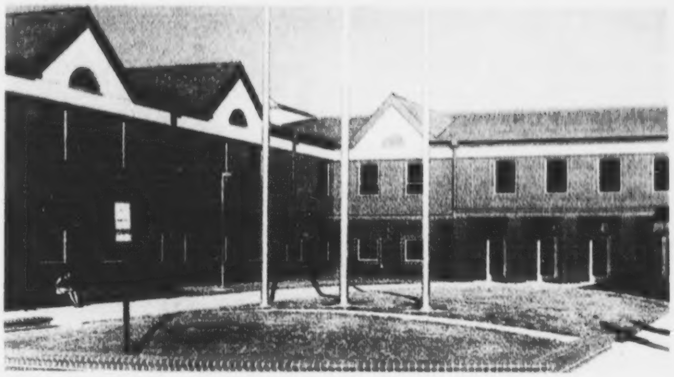
Cost per square foot
$101

Space per student
194 square feet

Cost per student
$19,584

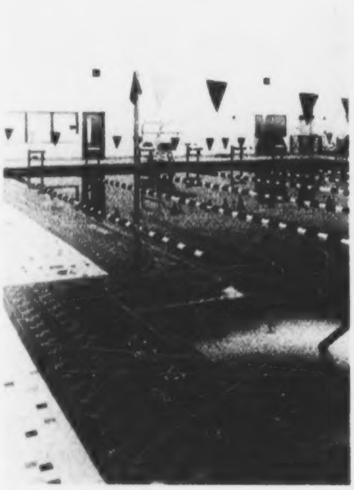
Completion date
1995

The new 213,220-square-foot Wilson Middle School was designed to accommodate approximately 1,100 students housed in Grades 6 through 8. The building is sited at a 45-degree angle at the corner of 26th Street and Tillotson Avenue. The site development includes access from 26th Street for services and event parking for after-hours functions and access from Tillotson Avenue for bus drop-off and staff parking. Other site amenities include a running track, football/soccer field, baseball diamonds, softball diamonds, six tennis courts, and a basketball court.

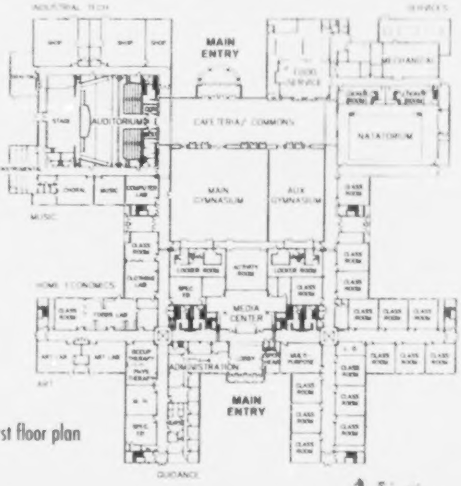

Exterior front entry

The building itself is divided into two parts: the academic portion and the auxiliary and event portion. The academic portion is two stories high and centered around a main student/staff entry court. The lower level is subdivided into two parts—a sixth-grade area and an auxiliary space area, which includes administration, guidance, art, home economics, and some special education. Both of these areas are situated around a central media center that is located off the main lobby and designed to be accessible after hours. The second floor of the academic area is also divided into two parts, one for the seventh grade and one for the eighth grade.

Technology centers are located throughout the building, with each classroom designed to incorporate voice/video/data retrieval and accommodate several computers. Other technology areas located throughout the building include typing, computer labs, and computer literacy.


Six-lane natatorium

The event portion of the building is accessed by a large public entry into a spacious cafeteria/commons area. The central commons serves as a lobby for a 650-seat auditorium that is divisible into three smaller lecture spaces; a main gymnasium seating 1,200; an auxiliary gymnasium; and a natatorium with a 6-lane, 25-yard pool. This same space functions as a cafeteria during school hours, with access to a full-service food preparation/serving area. Other functions that sur-


INDUSTRIAL TECH
SERVICES
SHOP
SHOP
SHOP
MAIN ENTRY
FOOD SERVICE
MECHANICAL
STAGE
AUDITORIUM
CAFETERIA/ COMMONS
NATATORIUM
INSTRUMENTAL
CHORAL
MUSIC
COMPUTER LAB
MUSIC
MAIN GYMNASIUM
AUX GYMNASIUM
CLASS ROOM
CLOTHING LAB
LOCKER ROOM
ACTIVITY ROOM
LOCKER ROOM
HOME ECONOMICS
MEDIA CENTER
FOODS LAB
ART LAB
ART LAB
ART
OCCUP THERAPY
PHYS THERAPY
ADMINISTRATION
LOBBY
MULTI-PURPOSE
MAIN ENTRY
GUIDANCE
First floor plan

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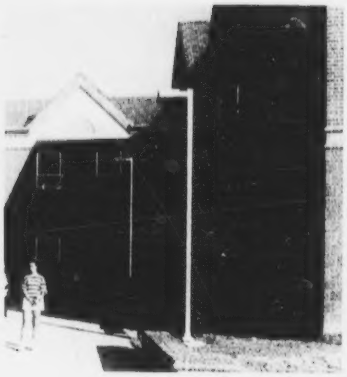
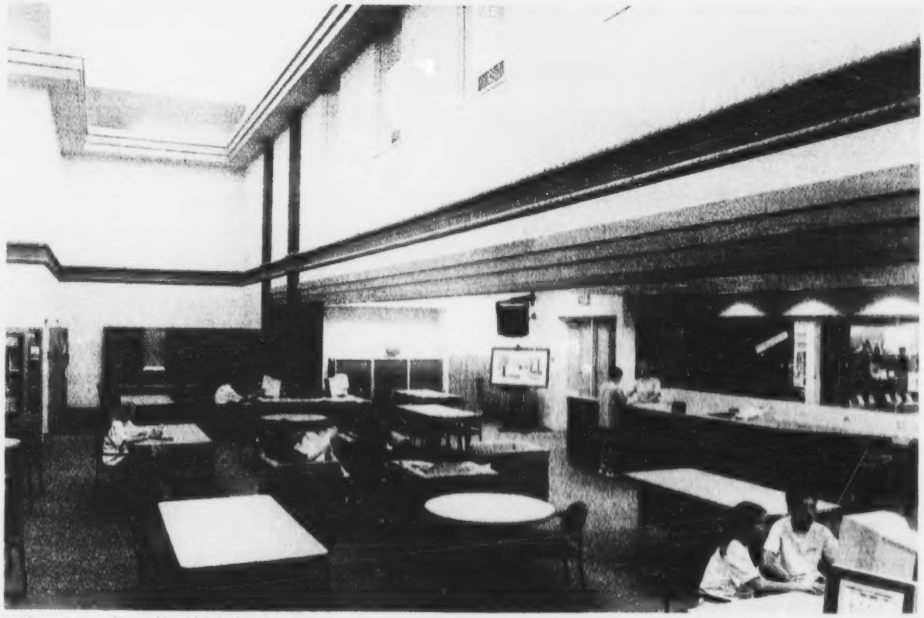




Media center with wood and brick detail

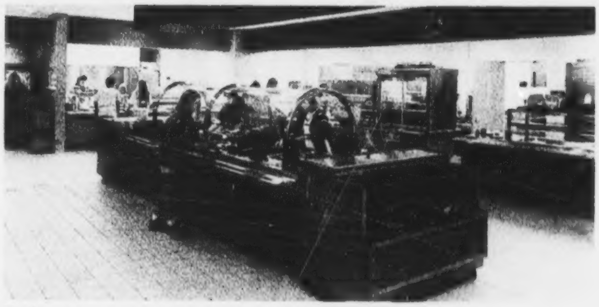
round the auditorium portion of the building include industrial technology and music.

The academic portion of the building was designed to allow the school to utilize traditional or interdisciplinary curriculums. With the interdisciplinary curriculum, each grade level could be divided into three clusters composed of a science room, four general classrooms, and a special education room.

The exterior appearance of the building has two distinct characteristics. The two-story academic area relates to the surrounding residential locality by utilizing dormers and residential-type sloping, shingled-roof systems. The activity event portion of the building utilizes low-profile roof lines, creating a more public/municipal character.

The structural system is a steel-skeletal framing system with a masonry exterior wall system comprising brick and concrete masonry units. Interior walls are concrete masonry units with some metal stud and gypsum wall board partitions in the administrative and guidance areas. The cafeteria/commons, main entry lobbies, and all corridors in the event area of the building are terrazzo. All corridors and classrooms in the academic area are carpeted. Ceilings throughout are acoustical lay-in type, with gypsum wallboard bulkheads. The exterior materials were brought into the building to enhance certain areas such as main entry lobbies, vestibules, and the media center.

The main air system is a variable-air volume system with custom-built air handling units. Associated variable-air volume reheat terminals are located above the ceiling in each classroom.



Food service

The central heating plant consists of two, natural gas-fired, hot water heating boilers; the central cooling plant consists of two water-cooled, rotary-liquid water chillers and associated cooling tower.

The swimming pool is served by a dedicated air handling system to control space temperature and humidity.

The temperature control system is a DDC/pneumatic energy-management system that provides individual room temperature control. ■

Auditorium with moveable partitions to accommodate small group instruction

HIGH SCHOOLS
Addition

BATAVIA HIGH SCHOOL
BATAVIA, ILLINOIS
ARCON Associates, Inc.

ARCON Associates, Inc.
420 Eisenhower Lane, North
Lombard, IL 60148

Glenn McGee
(708) 495-1900

Design team
William R. Olson
Principal in Charge

Steven E. Hougsted
Senior Associate

Client
Batavia School District 101
(708) 879-4645

Grade span
9-12

Current building capacity
1,800

Current building area
231,000 square feet

Building area before addition/renovation
117,000 square feet

Total project costs
$13.22 million

Cost per square foot
$116

Space per student
128 square feet

Cost per student
$7,344

Completion date
August 1995

Responding to growing enrollment issues, the community's expansion of Batavia High School has achieved several goals. Key accomplishments include the installation of fully integrated instructional technology and the creation of new core areas that allow for flexibility and maximum space utilization. Additions using contemporary forms were placed in front of and around the school to create the sense of an entirely new building.

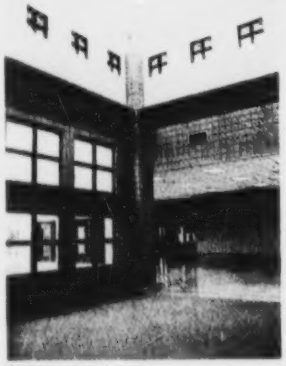
The addition of a large classroom wing allowed for the conversion of 13 existing classrooms into a new library equipped with a central communication hub and six computer labs.

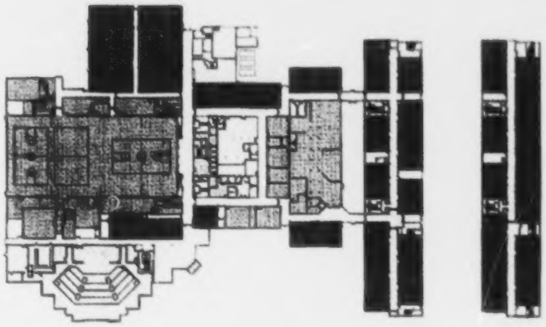
Incorporated into the new and existing facilities was a fiber-optic system with cable and ring tray systems to eliminate the need for exposed electrical lines. Science labs now incorporate voice, video, and data equipment with computers built into casework. Chemistry lab workstations are an island configuration equipped with air, power, water, and gas, as well as computer network capability.

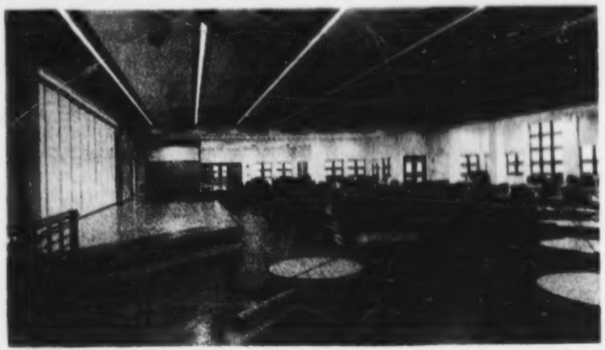
One of the project's cost-effective solutions was the design of a large multipurpose area to be used as a cafeteria as well as an auditorium. High ceilings and a stepped floor create a small amphitheater, providing a wide viewing area of the stage. ■

Entrance

Learning center


Atrium


First and second floor plan


Cafetorium

HIGH SCHOOLS
Addition

1995 ARCHITECTURE AWARD WINNER LEARNING BY DESIGN

BERKLEY HIGH SCHOOL
BERKLEY, MICHIGAN

TMP Associates, Inc.

TMP Associates, Inc.
1191 West Square Lake Road
Bloomfield Hills, MI 48302

John J. Castellana, FAIA
(810) 338-4561

Design team
John J. Castellana, FAIA

Client
Berkley School District
(810) 544-5850

Grade span
9-12

Total project costs
Science Center: $1.3 million

Cost per square foot
$76

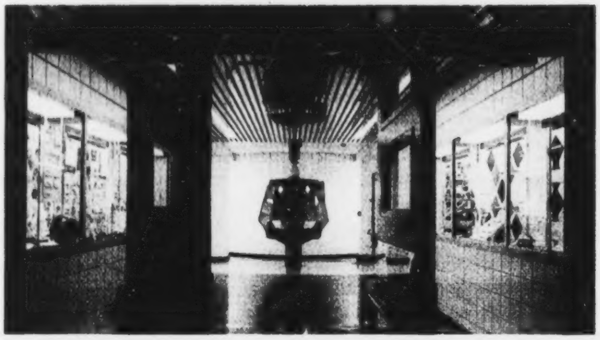
Completion date
January 1994

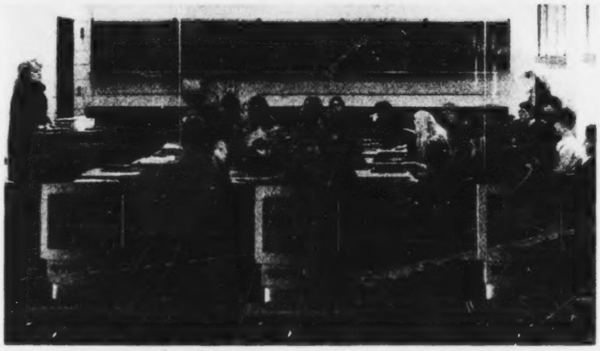
Berkley High School's new science center contains the latest technological advances in a spacious and vivid setting. The high school's original science labs were scattered throughout the facility, and many users described the spaces as grim and dingy. The district wanted to produce the best in a learning facility with the most effective use of technology. They wanted a center that would bring students into the 21st century.

To begin the design process, TMP conducted vision planning workshops with the high school science staff, school district administrators, and educational consultants to determine goals and objectives for the new center. The primary goal was to provide a flexible facility that would adjust to changes in science education and technology and allow for research and team-oriented learning.

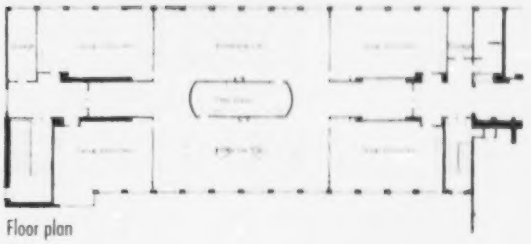
Specifically, the following "Top 10" list resulted from those visioning sessions:

1. Centralized location fosters interaction—make it visible to rest of school.
2. Science labs (wet or dry) should be generic and visible from/to each other.
3. Need for flexible lab settings.
4. Foster teaming for entire school—science becomes the place for this to occur.
5. Use technology to support group, lab, and individual activity areas.
6. Teachers need their own private space separate from teaching area.
7. Blend some traditional spaces with research-oriented "high tech" areas.
8. Consolidate materials to simplify inventory.
9. Development must include appropriate environment to support and reinforce activity.
10. Provide group instruction area for 9-10 graders.


Entry corridor


Group instruction room from lab space

Lab space


Floor plan

To achieve these objectives, numerous concept options were developed utilizing an existing wing of the 1950s school. Through interactive design sessions, the result is an extremely flexible and adaptable science magnet that made use of the full building width by eliminating the existing center corridor.

The solution features two large interactive lab areas for individual or group hands-on activities. These labs are flexible spaces that can accommodate various science curriculums. Adjacent to the labs are four group-instruction spaces for more controlled activities. These areas are visually and functionally linked to the lab spaces to help facilitate teaming opportunities. All spaces in the science center incorporate an interactive technology system to allow both simulation of experiments and instrumentation.

The key word to describe the center is spacious. The entire complex reflects air, light, and technology—elements that will prepare students for the world in which they will be working and living as adults. ■

HIGH SCHOOLS
New Construction

COFFEE COUNTY HIGH SCHOOL DOUGLAS, GEORGIA

James W. Buckley & Associates, Inc.

James W. Buckley & Associates, Inc.
114 North Green Street
Swainsboro, GA 30401

Tracy Chapman
(912) 237-6467

Design team
James W. Buckley, FAIA
Principal in Charge

Craig Buckley, AIA
Architectural Design

David Woodburn, AIA
Project Architect

Tim Earls
Project Manager

Client
Coffee County Board of Education
(912) 384-2086

Grade span
9-12

Current building capacity
1,235

Current building area
210,000 square feet

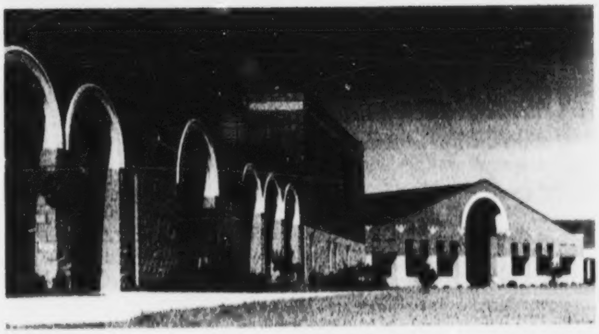
Total project costs
$13.42 million

Cost per square foot
$64

Space per student
170 square feet

Cost per student
$10,869

Completion date
November 1994



Exterior

Just a stone's throw from the county fairgrounds, you'll find Coffee County's new 210,000-square-foot high school. Architecturally treated as an assembly of public spaces, the facility projects a contemporary image while highlighting the concept of small town, village life.

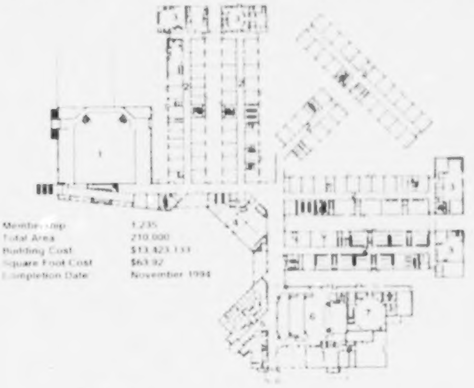
Meeting a broad spectrum of needs, Coffee County High School serves as a prelude for students going on to college and as a conclusion for those joining the workforce.

Laboratory space, located at the end of each classroom wing, is dedicated to electronic/mechanical, technical, agricultural, childcare, and health occupation studies. The facility's five classroom wings are not visible from the anterior. The building is organized around a broken primary axis. The media center is centrally located and equipped for computer networking.

Coffee County High School serves as a showpiece for a county rich in athletic tradition. The physical education facilities include a spectator gymnasium that seats more than 3,000. Along with locker rooms for boys' and girls' varsity basketball, the facility also features a 2,000-square-foot weight room and 2,000-square-foot multipurpose recreation room.

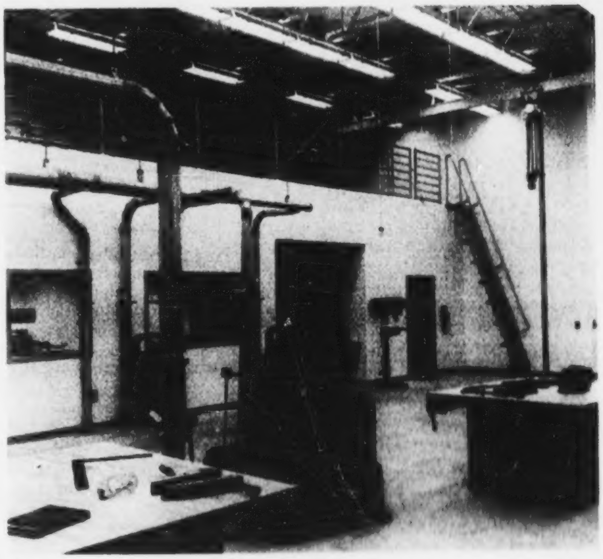
The school's cafetorium provides seating for 1,200 and 600 at tables. Stepped flooring is used to increase the efficiency of the dual-purpose dining and assembly area. The cafetorium stage is located adjacent to the music area for utilization as a teaching space. A catwalk is provided for production-oriented stage lighting. Both the cafetorium and gymnasium are accessible to the public for after-hours use without compromising the security of classroom areas. ■

Media center



Membership	1,235
Total Area	210,000
Building Cost	$13,423,133
Square Foot Cost	$63.92
Completion Date	November 1994

Floor plan



Shop

HIGH SCHOOLS
Addition

CURTIS SENIOR HIGH SCHOOL UNIVERSITY PLACE, TACOMA, WASHINGTON

Burr Lawrence Rising + Bates Architects, P.S.

Burr Lawrence Rising + Bates Architects, P.S.
1145 Broadway Plaza
Suite 1200
Tacoma, WA 98402

Jerry Lawrence, FAIA
President/CEO
(206) 627-5599

Design team
Tom L. Bates
Principal-in-Charge

Hossein Peigahi
Project Architect

Steve Russo
Geoff Goss
Project Team

Sitts & Hill Engineers
Civil Engineers

Chalker Putnam Collins & Scott
Structural Engineers

Tres West Engineers
Mechanical/Electrical Engineers

Armand Marion
Theater Consultant

Stan Champ
Acoustical Engineer

Barbara Chandler
Kitchen Consultant

Client
University Place School District
(206) 566-5600

Grade span
9-12

Current building capacity
1,400

Current building area
Addition: 58,900 square feet;
Renovation: 36,000 square feet

Total project costs
$8.56 million

Cost per square foot
$90

Cost per student
$6,117

Completion date
November 1994

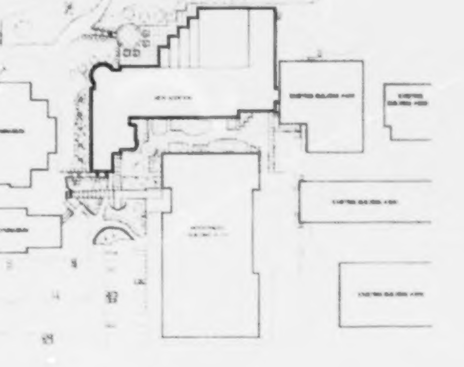
The program's goals included expanding student capacity to 1,400 students; providing new classrooms, student commons, kitchen, library, and specialized science classrooms; and modernizing and expanding the existing administration area and auditorium. Other critical goals were to unify an existing sprawling campus, provide handicapped accessibility on a severely sloping site, and create an entrance identity for the campus.

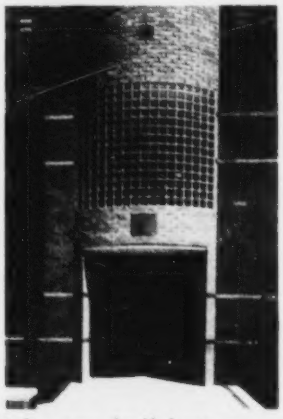
The new building's design responds to the shape and slope of the site, takes advantage of panoramic mountain views and, most important, unifies the upper and lower campus. Pedestrian bridges and a monumental elevator tower allow accessibility. A steel pylon that carries the school name and a free-standing stair structure identify the campus entry.

The new building is a simple L-shaped structure with a central double-loaded corridor accessing the classrooms. The commons is an exposed steel structure with a ziggurat form to avoid the steep slopes on the site and to provide an outdoor plaza for social gatherings. The roof structure in this area is stepped to bring natural light into this large volume space through continuous clerestory windows. A cylindrical element or "hinge" houses faculty offices. This circular form provides views of athletic fields and distant mountains and also articulates a smooth transition where the building turns 90 degrees. ■

Entrance

Commons multipurpose area


Site plan


Light spectrum glass block entrance

HIGH SCHOOLS
New Construction

DIAMOND RANCH HIGH SCHOOL POMONA, CALIFORNIA

RTA/Blurock-Morphosis

RTA/Blurock
1001 W. 17th St., Unit F
Costa Mesa, CA 92627
(714) 646-9373

Morphosis
2041 Colorado Ave.
Santa Monica, CA 90404
(310) 453-2247

Design team
Thom Mayne
Principal-in-Charge
Thomas H. Blurock
Architect of Record
John Enright
Project Architect
Thomas Moore
Co-Project Architect

Client
Pomona Unified School District
(909) 397-4888

Gradespan
9-12

Current building capacity
1,200

Current building area
146,576 square feet

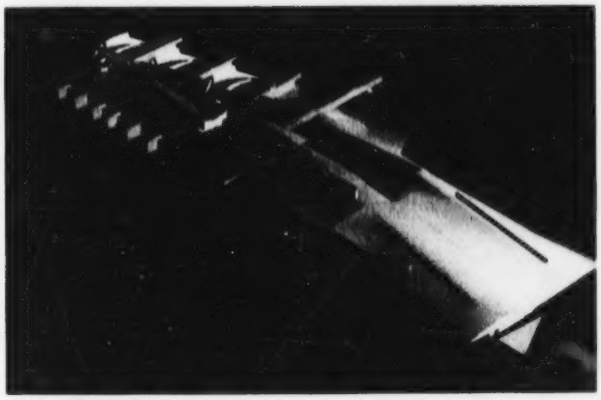
Total project costs
$19 million

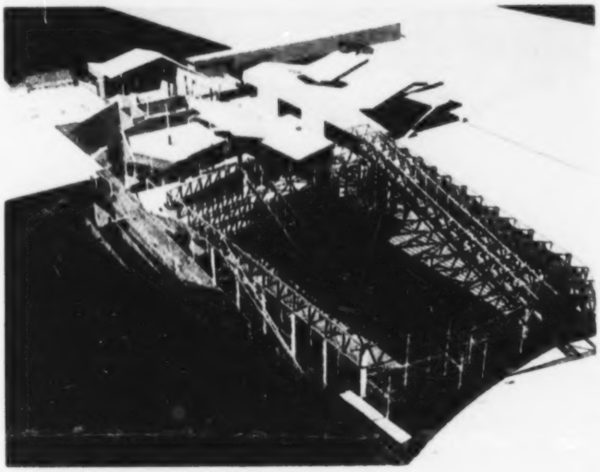
Cost per square foot
$130

Space per student
122 square feet

Cost per student
$15,833

Completion date
April 1998


Upper and lower schools


Gymnasuim structure

The high school will be a 142,476-square-foot building clustering Grades 9 and 10 classes to the north side of a "pedestrian street." Grades 11 and 12 are positioned to the south of the street and are arranged around open-air courtyards.

Our intent was to create a building that is perceived as "one with the site," rather than "on top of the site." By incorporating the topography with outdoor playfields, public spaces, and rooftops, we have attempted to create a cohesive environment between building and landscape. In a similar manner, we also have tried to integrate the building with its users through the use of courtyards and a pedestrian street that encourages interaction while fostering a flexible learning community. This project accommodates the educational program and simultaneously demonstrates a means of negotiating a method of preserving nature. In the end, this is how we learn—through example.

Our proposal focuses on three major areas. The first is our desire to take advantage of the natural beauty of the site by integrating the playfields and the buildings into the surrounding hillside. The second goal is to create a dynamic built environment that would foster interaction between students, teachers, administration, and the community. Finally, our proposal attempts to facilitate a flexible teaching environment. ■

Site plan

Sections

HIGH SCHOOLS
Renovation

FEINSTEIN HIGH SCHOOL FOR PUBLIC SERVICE PROVIDENCE, RHODE ISLAND

CJNA/Charles J. Nafie & Associates

CJNA/Charles J. Nafie & Associates
Ten Davol Square
Providence, RI 02903
Charles J. Nafie, Jr., AIA
(401) 272-7440

Design team
Charles J. Nafie, Jr., AIA
Principal-in-Charge
James Garretson, AIA
Design Director
Michael W. McKinley, AIA
Project Designer
Mark Rapp
Project Architect
Owen & Mandolfo, Inc.
Interiors Consultant
Cataudella Associates
Mechanical/Electrical Engineers
Commonwealth Engineers
Civil and Structural
Crabtree/McGrath
Foodservice Consultant

Client
City of Providence School Department
(401) 456-9435

Construction Manager
Dimeo Construction Company

Grade span
9-12

Current building capacity
400

Current building area
50,000 square feet

Total project costs
$4.5 million

Cost per square foot
$90

Space per student
125 square feet

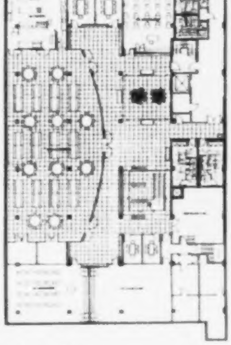
Cost per student
$11,250

Completion date
October 1994

The first high school built in the City of Providence in 50 years was designed for 400 students and constructed on a fast-track basis within six months. The 50,000-square-foot, three-story building built in 1945 is a modernist brick-clad building that has two full levels above grade and one level below grade. The main entrance to the school was located to the rear of the existing building, attempting to embrace the adjoining residential neighborhood.

The building program combined a specialized education program with a unique philosophy into 15 classrooms, two science labs, an art room, a computer lab, a media center, a cafetorium, a full-service kitchen, and administration offices. The building also has a state-of-the-art computer networking system throughout the school, as well as a community room, art exhibition room, and a variety of small/conference rooms for the students and staff.

The design concept introduces a series of internal streets on each level, creating an atmosphere where students and faculty can congregate throughout the day outside of the classroom environment. Since one level was completely below grade we introduced two open skylight atriums to bring sunlight to all levels, especially to the lower level. These open atriums visually connect all floors of the school, reinforcing the horizontal streets as well as the open educational environment. ■


Lower level floor plan

Exterior

Interior atriums

Cafetorium and lower level street

HIGH SCHOOLS
New Construction

GAYLORD HIGH SCHOOL
GAYLORD, MICHIGAN

Fanning/Howey Associates, Inc.

Fanning/Howey Associates, Inc.
114 York Street, P.O. Box 584
Michigan City, IN 46361
Lee J. Brockway, AIA
(219) 872-0635

Design team
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Principal-in-Charge
Ronald H. Fanning, AIA, PE
Back-up Principal-in-Charge
Douglas M. Wickstrom, AIA
Project Manager/Project Designer
David M. Bernethy, AIA
Project Architect
Charles A. McCoy, CET
Mechanical Systems Designer
James K. Perkins, ASLA
Site Planning
Stuart E. Franzen, ASLA
Landscape Architect
Edward J. Sawa
Construction Administrator
Allan Mee, RLA
Construction Administrator
Alvaro Villalta, EIT
Educational Technology

Client
Gaylord Community Schools
(517) 732-6402

Grade span
9-12

Current building capacity
1,200

Current building area
190,853 square feet

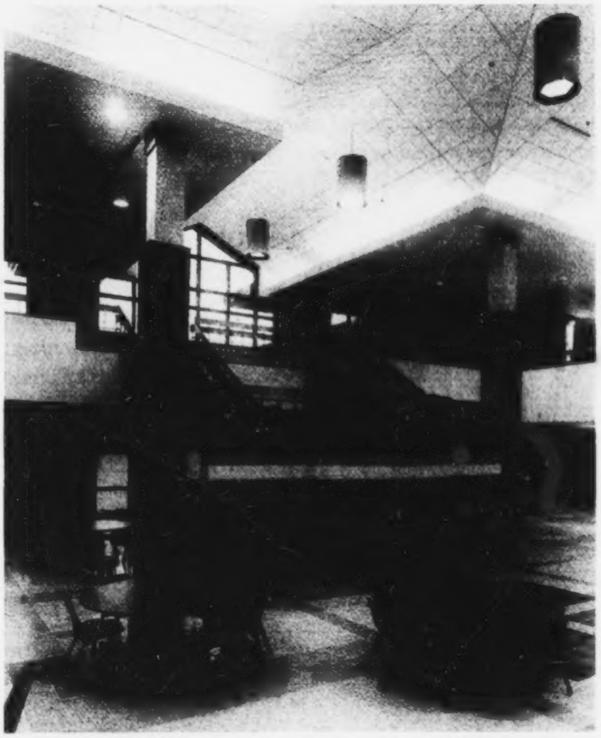
Total project costs
$15.1 million

Cost per square foot
$79

Space per student
159 square feet

Cost per student
$12,573

Completion date
September 1994

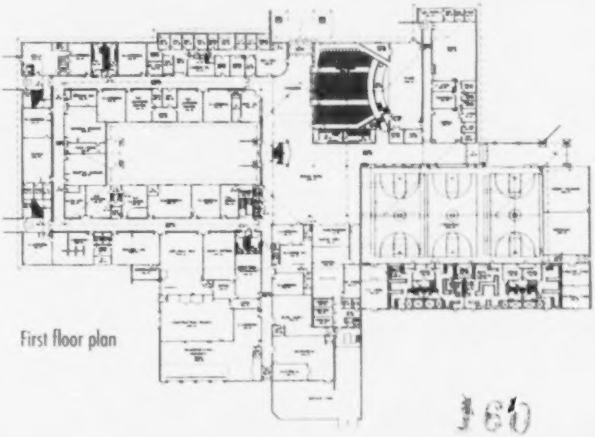

Interior vertical detail of commons

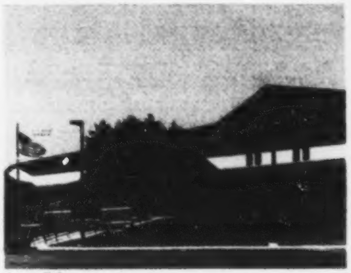
This new two-story high school facility consists of 190,853 square feet and serves the district's 1,200 students in Grades 9 through 12. It includes a large dining area, auditorium, and commons area.

The auditorium, gymnasium, administrative offices, and large dining areas are all served by the main public entrance. The academic areas of the building can be secured from the community/public areas during evening, weekend, and summer activities.

The Alan L. Gornick auditorium seats approximately 550 people and contains an orchestra pit, generous stage area, storage spaces, lighting catwalk, and sound control booth. The total of these spaces is approximately 10,000 square feet. An area of the auditorium is devoted to a handicapped accessible wheelchair viewing space, which is designed to comply with the state's requirements for accessibility. An adjacent music suite with band, choral, practice, ensemble, and storage spaces complements the capabilities of the auditorium. The theater complex is in the public zone of the building, and a large commons space complements its capabilities during special events.

The media center is located on the second floor, which allows easy access to the academic areas of the building. Adjacent to the media center is a computer lab with 30 computers as well as plenty of storage space. Lighting coves provide non-glare indirect lighting to supplement the natural light. Within this area is the technology "heart" of the building. The video distribution switch and video sources are located here, as are the main distribution frame and


First floor plan


Overall front exterior

160

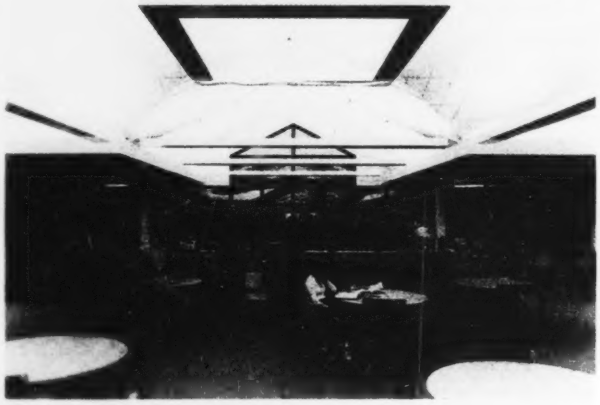
Interior entry, commons area, administration, student shop

Exterior courtyard

file servers for the building-wide data network. The media center overlooks an outside courtyard, which gives natural lighting for the space.

The Jim Mongeau gym is 17,584 square feet supplemented by a weight training room of 1,955 square feet and a wrestling room of 2,000 square feet. The gym is large enough to fit three basketball courts side by side.

The mechanical system is designed with energy efficiency as a prime criterion. The entire academic area is served by two large air handling units distributing air to series-type fan-powered VAV boxes.



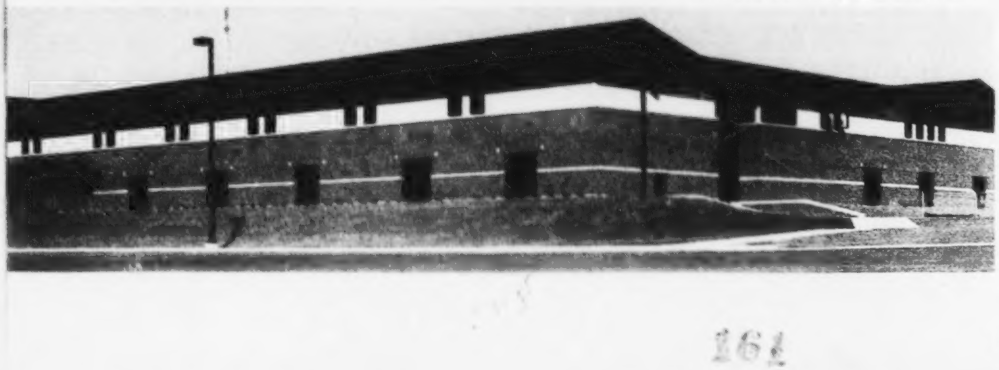
Media center overlooks outdoor courtyard

Science lab with adjoining classrooms

The industrial arts area, cafeteria, gymnasium, auditorium, and library areas are equipped with individual, single-zone air handling units to provide heating and ventilating for each space. All air handling units have been provided with cooling coils and controls to allow for the addition of future air-conditioning.

The building heating is provided by multiple cast iron, gas-fired, hot-water boilers piped in a primary secondary piping arrangement to allow for energy-efficient operations.

The energy-management system is a DDC electronic control system with computer and accessories. The system is equipped with a weather station to allow for optimal starting capabilities. All utilities are monitored for consumption. The system monitors air quantities at all air handling units and VAV boxes. All room temperatures are monitored and logged; all filters are monitored for cleanliness. ■



HIGH SCHOOLS
New Construction

KING/DREW MEDICAL MAGNET HIGH SCHOOL LOS ANGELES, CALIFORNIA

WLC Architects, Inc.

WLC Architects, Inc.
10470 Foothill Bl., Tower Suite
Rancho Cucamonga, CA 91730

Gaylaird Christopher
(909) 987-0909

Design team
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Principal-in-Charge

Robert Uribe
Job Captain

Rohit Shah
Project Architect

Mark Graham
Project Manager

John Kristedja
Designer

Dennis Roney
Kandi Burke
Jeff Capistran
Jackie Bassman
Harold Williams & Associates
Harold Williams
Gary Grey

Client
Los Angeles Unified School District
(213) 633-8031

Grade span
9-12

Current building capacity
1,700

Current building area
260,000 square feet

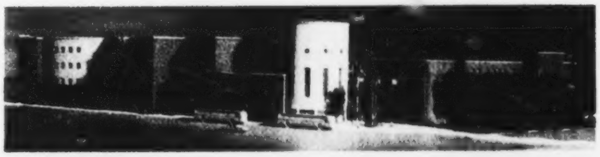
Total project costs
$44 million

Cost per square foot
$169

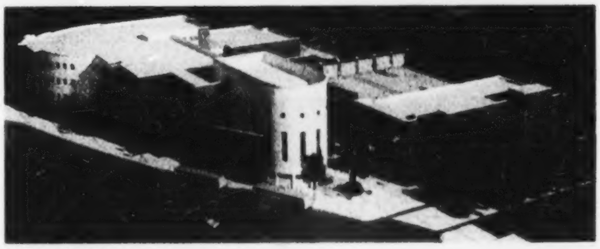
Space per student
170 square feet

Cost per student
$25,882

Completion date
September 1998



Exterior model



Exterior model

King/Drew Medical Magnet High School is one of the first comprehensive facilities designed as a joint effort of the Los Angeles Unified School District and the Charles R. Drew University of Medicine and Science to promote training of qualified health professionals in Los Angeles. Students from Grades 9 through 12 will be given additional courses in math and sciences along with the general required courses that will allow them to be better prepared for college. Furthermore, students will be required to complete a specific number of hours of work experience in the neighboring hospital and university before graduation.

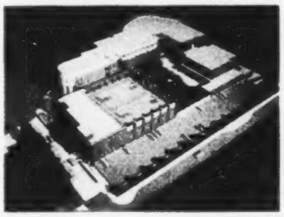
The 3.8-acre site located near Martin Luther King, Jr. General Hospital and the Charles R. Drew University of Medicine and Science allows the 1,700 students easy access to these facilities. The facility is designed with six distinct areas: lecture hall, kitchen and cafetorium, academic wing, gymnasium, and parking garage surrounding an interior courtyard.

The facility is accessed by way of a naturally lit, four-story atrium flanked by the administrative area and the gymnasium. The academic wing is a four-story structure that includes the general classrooms, science laboratories, and computer and language labs. The administration, library/media center and oral arts room anchor the east end of the academic wing.

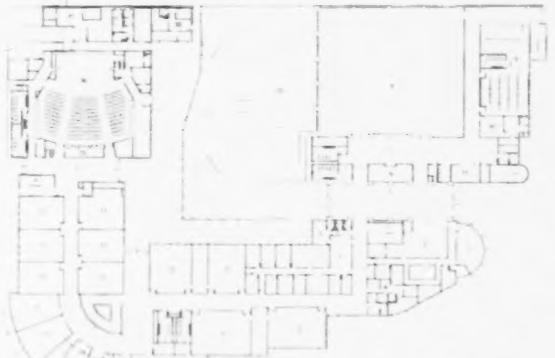
Computer technology will be designed as an integral function within the facility. Each classroom will provide the ability to have multiple computer stations that are networked together. The faculty and students will also have the ability to network with other school facilities as well as with the King/Drew Medical and Drew University to further the shared learning experience.

Because of the limited site area, the gymnasium wing is provided with a roof-top exterior sports deck that allows the students to supplement their general physical education requirements.

The exterior materials of brick, precast concrete panels, and plaster respond to the neighboring Drew University and King Hospital. Visible recognition of the school's African American namesakes—Dr. Martin Luther King, Jr. and Dr. Charles Drew—have been integrated into the design by a sensitive precast sculptured wall mural and related art work throughout the facility. ■



Aerial model



Floor plan

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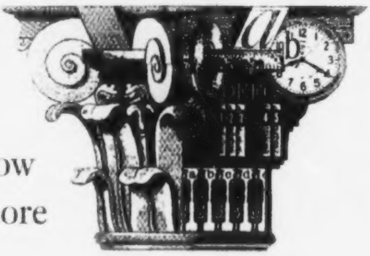

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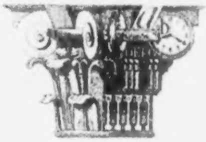
HIGH SCHOOLS
Project in Progress



LAKOTA LOCAL SCHOOL DISTRICT HIGH SCHOOLS WEST CHESTER, OHIO

Steed Hammond Paul Inc.

Steed Hammond Paul Inc.
82 Williams Avenue
Hamilton, OH 45015

Michael P. Dingeldein, AIA
(513) 863-5441

Design team
Michael P. Dingeldein, AIA
Project Director

Andrew S. Maletz
Assistant Project Director

Melissa Walters, AIA
Project Architect

Ann Scrimizzi
Project Interior Designer

Robert Beumer, AIA
Production Director

Client
Lakota Local School District
(513) 874-5505

Grade span
9-12

Current building capacity
1,800

Current building area
252,711 square feet

Total project costs
$50.1 million

Cost per square foot
$99

Space per student
140 square feet

Cost per student
$13,917

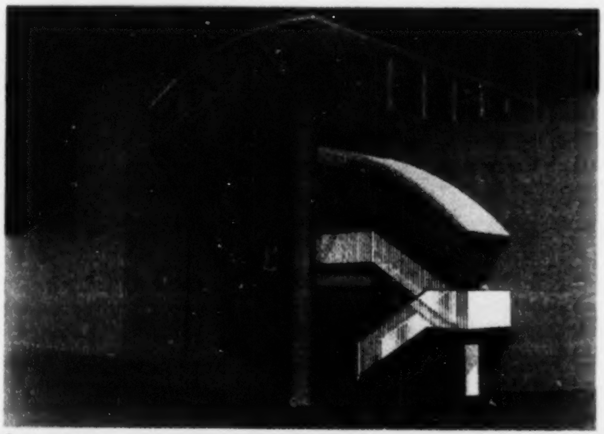
Completion date
April 1997

This project is a significant work in progress from two aspects: the great number of participants in the design process and the level of detail communicated among the participants through the use of 3D computer-modeling technology.

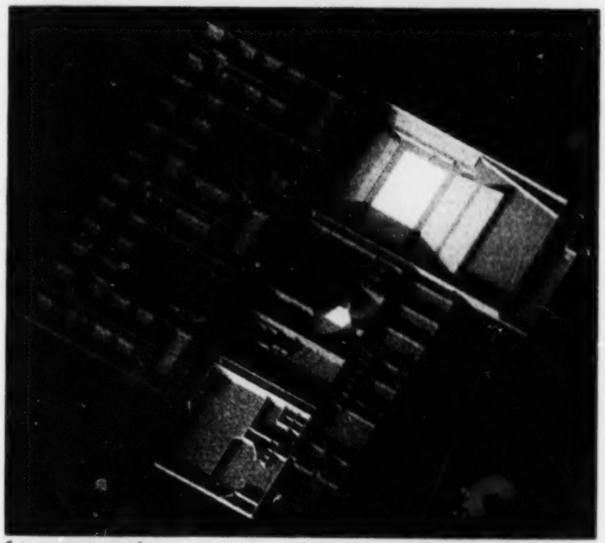
This project incorporates Steed Hammond Paul's consensus-building process called the Schoolhouse of Quality. This process is the basis for a pursuit of world-class educational facilities through its ability to collectively tap the knowledge, creativity, and enthusiasm of students, teachers, parents, staff members, board members, and the community at large to bring unique value-driven design solutions to the school district and the community.

More than 500 people participated in qualitative and quantitative research relative to creating two new high schools for the Lakota community. Thirty separate "expert design teams" of teachers, parents, students, architects, engineers, and product experts worked on individual areas of the program to bring high-level focus to solutions in areas such as general academics, science, fine arts, athletics, technology, safety, accessibility, and maintenance.

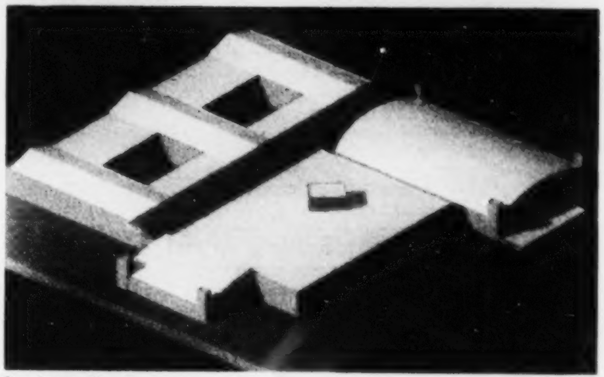
Three-D computer modeling was used to create prototype architectural building solutions to the expert design team's priorities. It is important to note that computer models were not created as presentation drawings but rather as working study models. With 30 different design teams, there were multiple daily meetings to develop and discuss program priorities.



Front entrance



Cutaway axonometric



Exterior massing

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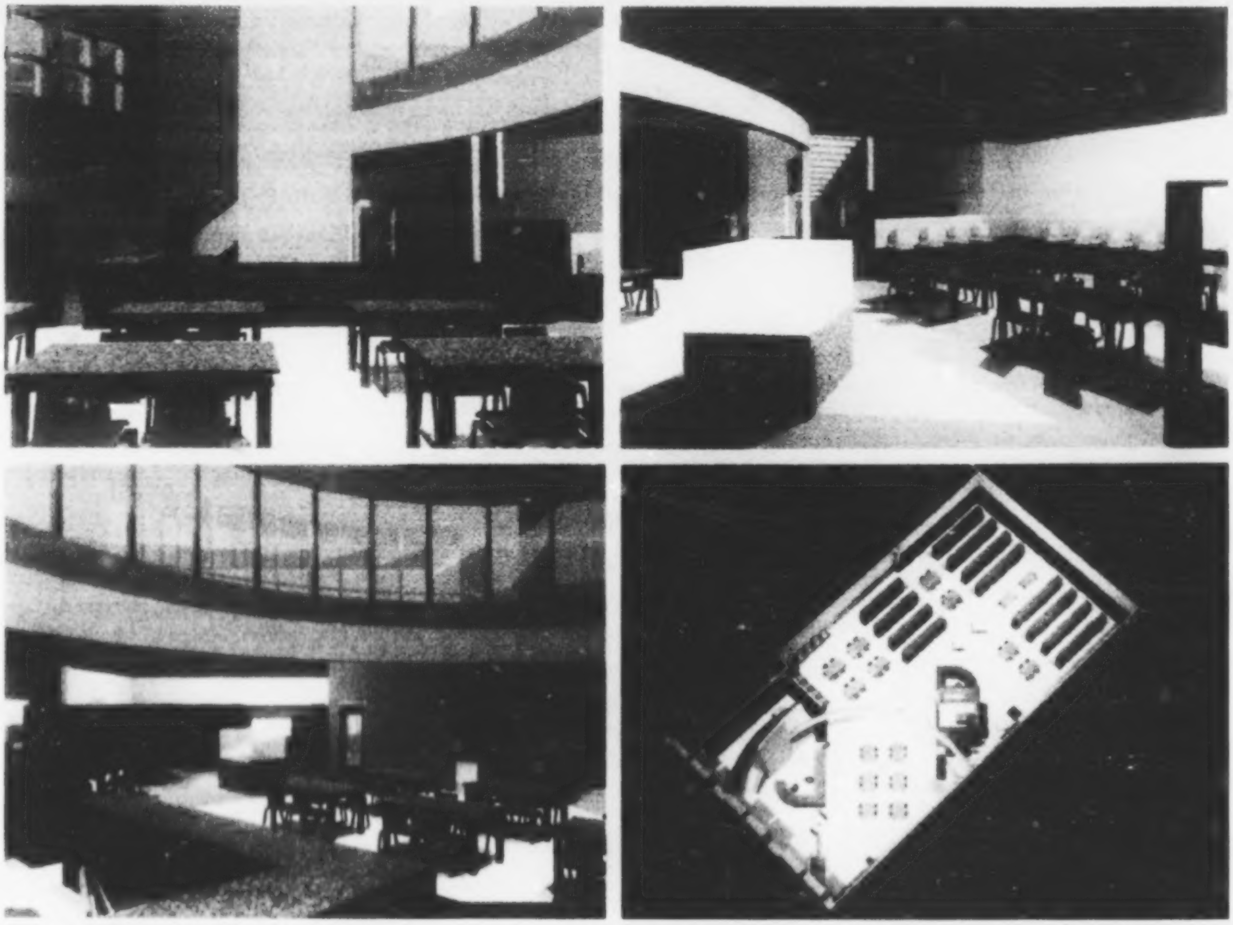
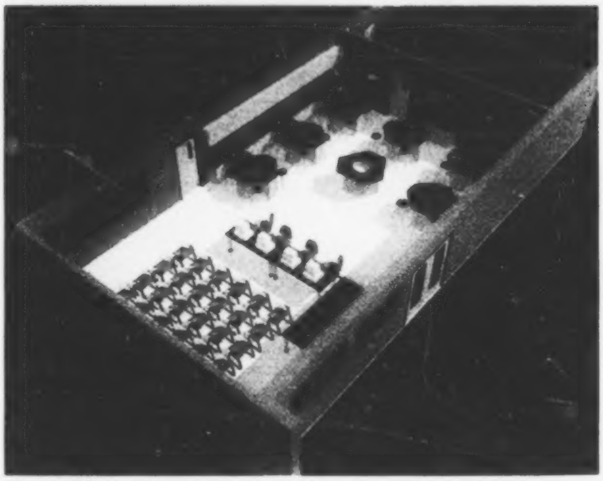


Media center—4 views

Student commons



Chemistry lab

Soft design data was needed that could be visualized very quickly but in a way that could clearly communicate the program and space requirements under discussion with each group. The data changed daily, but the changes were incorporated into the total design immediately. As we made major changes to the massing and volume of the building we were still visualizing spaces to the detailed level of furniture and equipment.

Without these two significant design tools (the Schoolhouse of Quality process and 3D computer modeling) we would not have been able to get the 500 participants on the same page relative to the design solutions, nor would we have been able to create such a comprehensive design that uniquely meets the needs of the Lakota community.

The project is now under construction, with both facilities slated to open for the fall 1997 school year. ■

HIGH SCHOOLS
New Construction

LEE'S SUMMIT NORTH HIGH SCHOOL
LEE'S SUMMIT, MISSOURI

The Hollis & Miller Group, Inc.

The Hollis & Miller Group, Inc.
309 S.W. Market Street
Suite 100
Lee's Summit, MO 64063

John Wisniewski, AIA
(816) 525-5600

Design team
John Wisniewski, AIA
Principal-in-Charge

John Southard, AIA
Designer

Bob Jones, AIA, CSI
Architect

Stacie Twedt
Interior Designer

Client
Lee's Summit R-VII Schools
(816) 524-3368

Grade span
9-12

Current building capacity
1,500

Current building area
266,000 square feet

Total project costs
$22.55 million

Cost per square foot
$85

Space per student
177 square feet

Cost per student
$15,031

Completion date
August 1995

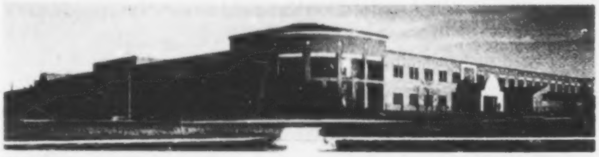
Lee's Summit, Mo., a suburb of Kansas City, has experienced rapid growth in the last few years. When Lee's Summit High School became the largest high school in the state, the need for a second high school was clearly established to eliminate overcrowding. A no-tax-increase bond issue in 1993 funded the first phase of Lee's Summit North High School.

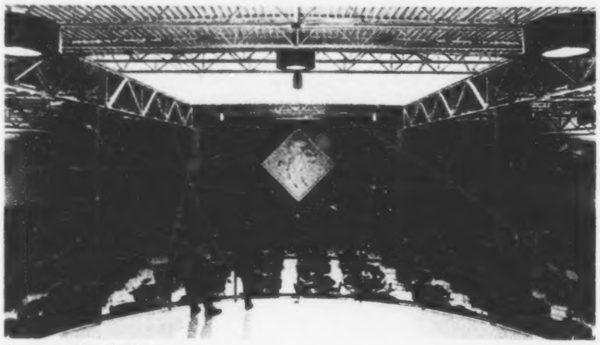
Located on a 95-acre site and designed for 1,500 students with planned expansion for another 500, the two-story, 266,000-square-foot building includes an 850-seat performing arts center, a computer lab, science labs, a greenhouse, small lecture halls, and a media center. Shared teacher planning areas were developed to move the teacher's office out of the classroom and into centralized areas with ample conference space.

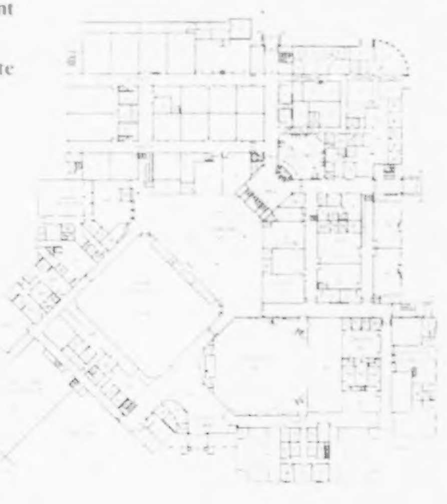
Technology was a major consideration in designing the new high school. A comprehensive voice, video, and data network of fiber optics, along with an integrated information system for 142 teaching stations, interface with the intercom, telephone, and security system. A full video production studio will enable students to shoot, edit, and produce their own productions.

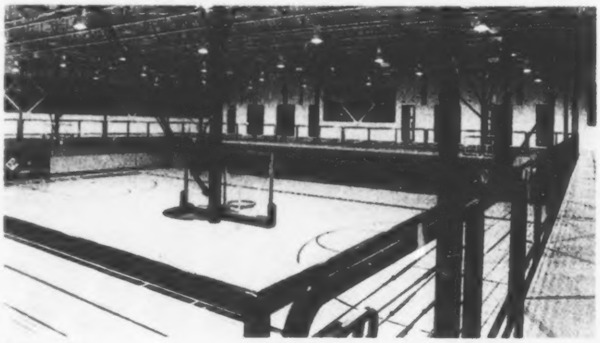
To provide education alternatives for the 21st century, the high school was designed with flexibility in mind. Within each curricular area are small-group meeting areas, standard classrooms, and multiple classroom learning environments. Most classrooms are designed to accommodate different curriculums in the future.

Through the design and construction of the building, several cost-saving methods were applied. The construction of the high school was phased through two bond issues, one in 1993 and the other 1994. Bid as one package, this saved the school district about $1 million. Precast building panels permitted construction through winter months. Interior classrooms permitted a lower ratio of exterior perimeter to building area, reducing costs. ■


Facade


Commons from landing


Floor plan


Gymnasium

HIGH SCHOOLS
Addition

LOYOLA ACADEMY
WILMETTE, ILLINOIS

O'Donnell, Wicklund Pigozzi & Peterson Architects, Inc.

O'Donnell, Wicklund Pigozzi & Peterson Architects, Inc.
570 Lake Cook Road
Deerfield, IL 60015

John M. Syvertsen, AIA
(708) 940-9600

Design team

Andrew D. Mendelson, AIA
Project Principal

Raymond A. Pigozzi, FAIA
Design Principal

Kim Clawson, AIA
Project Manager

John M. Syvertsen, AIA
Project Designer

Ron Harrison, AIA
Project Architect/Designer

David Dillion
Mary Ford Cavanaugh
Stuart Brodsky
Karin Deam
Project Team

Client
Loyola Academy
(708) 256-1100

Grade span
9-12

Current building capacity
2,000

Current building area
Addition: 85,000 square feet;
Renovation: 30,000 square feet

Total project costs
$11 million

Cost per square foot
$96

Cost per student
$5,500

Completion date
August 1994

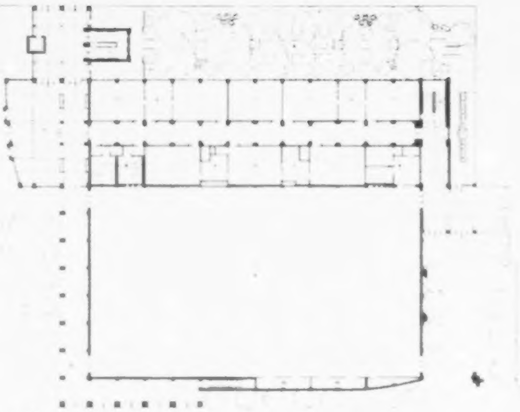
A preeminent Jesuit college preparatory school, Loyola Academy merged with the all-female Marillac High School to form a coeducational high school for 2,000 students. The original building was constructed in the mid-1950s on a site of 22 acres. The facility was expanded and modernized to accommodate the larger coed student body. The construction schedule was 16 months.

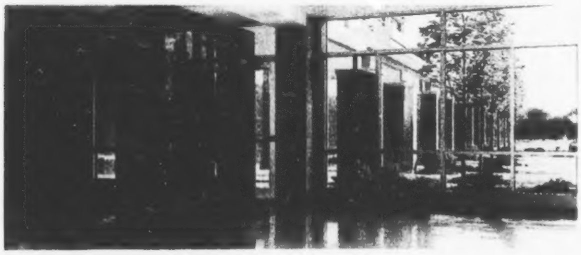
After intensive master planning and programming with staff and administration, the 85,000-square-foot addition was planned to consist of 24 classrooms, faculty offices, seminar rooms, a three-station gymnasium, locker rooms, weight rooms, and a wrestling room appropriate for 21st century educational environment and for the religious nature of the institution.

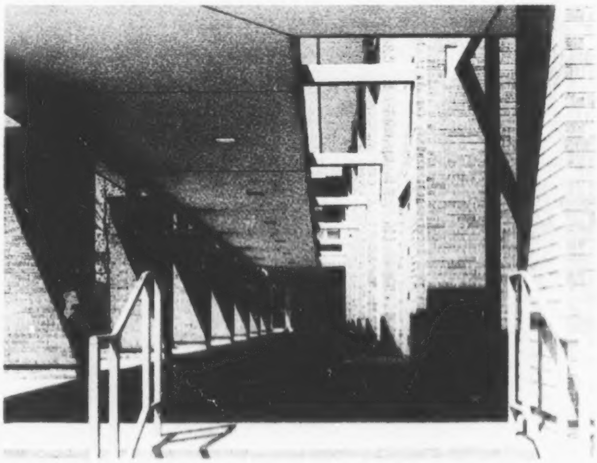
Major goals of the site design were to integrate the existing building with its addition, revise the departmental organization, and establish a clear and inviting front door.

The architectural language of the addition builds on that of the existing building. For example, the new masonry matches the existing buildings. A focal point was achieved by the glass-enclosed landscaped lobby. The height of the gym was reduced by articulating the perimeter walls and creating a horizontal walkway around the western third of the gym. Effective distribution of parking and automobile and bus routing, along with extensive landscaping, provides dramatic improvements in function and image of this intensively used site. ■

Courtyard


First floor plan


Entry lobby


Covered walkway

HIGH SCHOOLS
New Construction

MANSFIELD HIGH SCHOOL—NORTH CAMPUS ARLINGTON, TEXAS

Huckabee & Associates, Inc.

Huckabee & Associates, Inc.
204 River North Boulevard
Stephenville, TX 76401
Tommie J. Huckabee, AIA
(817) 968-5588

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Principal-in-Charge
Michael D. King, AIA
Design Team
Christopher M. Huckabee, AIA
Design Team
Charles F. Terry, PE
Structural Engineer
Jack T. Burgess, PE
Electrical Engineer
Thomas Romine, Jr., PE
Mechanical Engineer
Paul Svacek
Construction Observer

Client
Mansfield Independent School District
(817) 473-5680

Grade span
9

Current building capacity
1,000

Current building area
120,544 square feet

Total project costs
$5.88 million

Cost per square foot
$49

Space per student
121 square feet

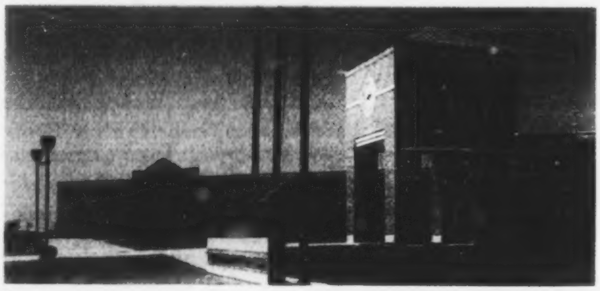
Cost per student
$5,883

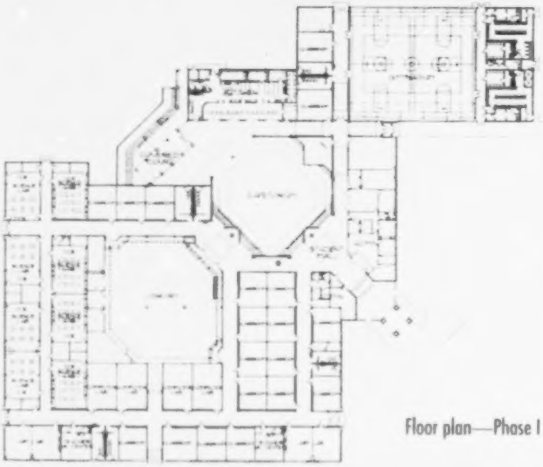
Completion date
August 1995

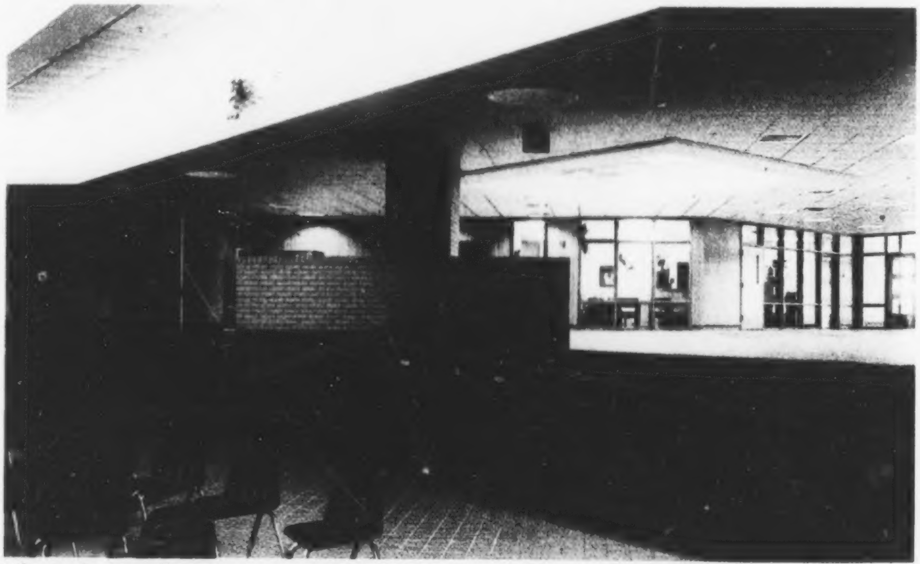
The Mansfield Independent School District commissioned Huckabee and Associates to develop Phase I of a new high school campus. Phase I would house 1,000 students with the core elements designed for 2,000 students.

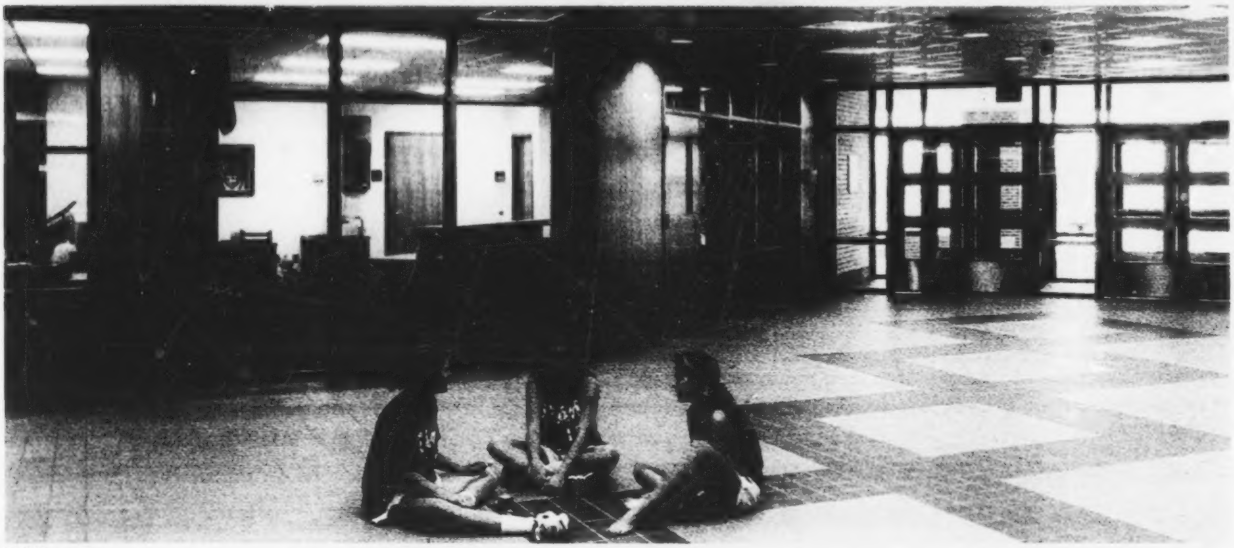
The district is in a fast-growing bedroom community with limited funds. The educational specifications called for Phase I of the project to serve 1,000 students and provide the basic classroom, science rooms, and teaching units required for the educational programs being provided. The educational specifications also called for the library and dining/kitchen area to serve an expanded campus of 2,000 students. A 1,000-seat spectator gymnasium with dressing rooms was provided to serve the physical education program.

All other educational offerings were planned to be provided off campus until the


Entrance

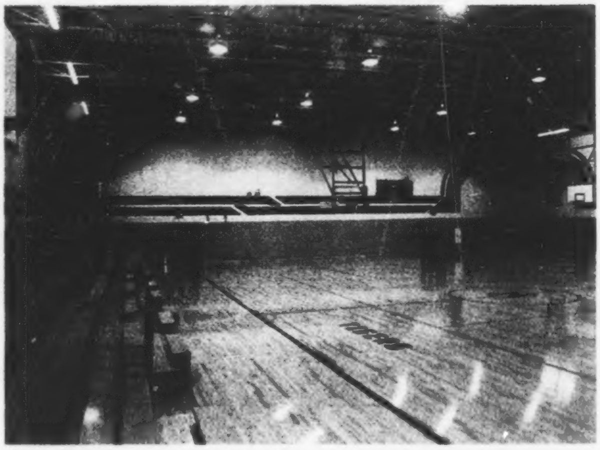

Floor plan—Phase I


Cafetorium/student mall

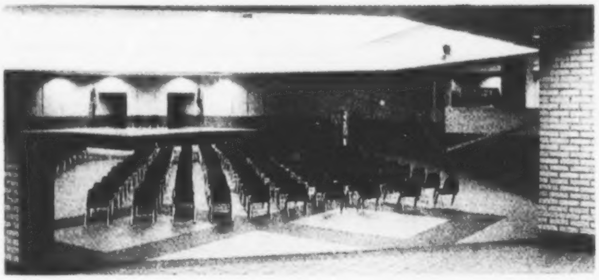


Building entry

Library



Gymnasium



Cafetorium

second phase of the facility was completed. The education specifications placed emphasis on a plan that allowed maximum flexibility and usable space. Technology was of key importance, with lighting and networking designed for computers in all spaces.

The facility was planned with the library and resource center in the center of the academic areas. Orbiting about the library and resource center are intensive instructional units, laboratories, and work centers. The arrangement of the instructional units provides for individual, undisturbed concentration as well as purposeful well-coordinated instructional units. To maximize the use of each classroom, teacher work centers were developed. They provide each teacher with a telephone, desk, and filing/storage area while allowing each classroom to be utilized throughout the day. A large student mall with natural lighting and outdoor courtyards were developed. Durable materials, including face brick walls and quarry tile floors, were used throughout the school to create a lasting facility. State-of-the-art networking was installed in the school to allow teachers and students access to a centrally located server database, CD-ROM library, and modems.

The budget demanded the compact shape and loft-type design to be constructed of a basic system of steel joists, beams, and columns. The exterior walls are of face brick and concrete masonry construction for reasons of economy and to create a pleasing scale through pattern and texture.

The surrounding environment affected the form of the building and its placement on the site, as it is bordered by a typical residential subdivision. The building was positioned to preserve and use the open site for outdoor physical education and athletic fields.

Phase II will provide additional classrooms; a performing arts center for band, choir, drama, and art; and a 2,000-seat auditorium. An industrial technology center will also be provided. ■

HIGH SCHOOLS
New Construction

NORTHWOOD HIGH SCHOOL
IRVINE, CALIFORNIA
TBP/The Blurock Partnership

TBP/The Blurock Partnership
2300 Newport Boulevard
Newport Beach, CA 92663

Anne Burger
(714) 673-0300

Design team
Alan E. Smith, AIA
Principal-in-Charge

Gary Moon, AIA
Senior Designer

Wendell Vaughn, Architect
Designer

Matthew W. Sommers, AIA
Project Manager

Client
Irvine Unified School District
(714) 651-0444

Grade span
9-12

Current building capacity
2,400

Current building area
198,000 square feet

Total project costs
$30 million

Cost per square foot
$152

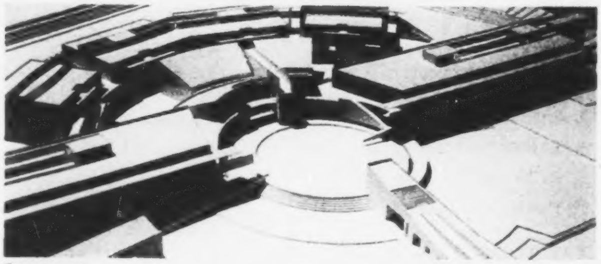
Space per student
83 square feet

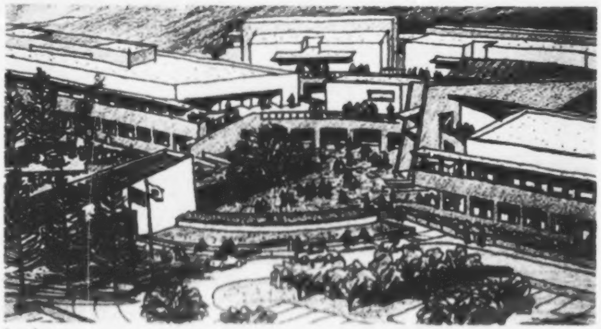
Cost per student
$12,500

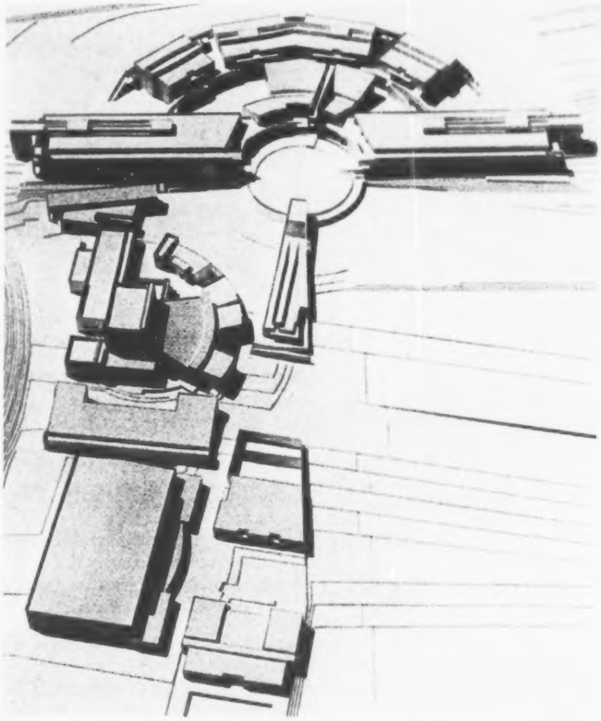
Completion date
Fall 1999

Northwood High School will be a comprehensive high school for Grades 9 through 12 with a master planned capacity of 2,400 students. Reflecting the State Department of Education's text, "Second to None," the school is organized into three hierarchical components: houses, villages, and institutes. Academic core "houses" comprise interdisciplinary groupings of core academic classes, all linked to a common student work area. Groupings of 9th, 10th, and 11th-12th "houses" make up four "villages." Students will be encouraged to attend a particular village for all four years, creating the "school within a school" model. The third hierarchical component is the "institute," which will offer students specific career, college-prep, or academic focus at the 11th and 12th grades. The five institutes will be Bio-Med/Health, Humanities, Computer Applications/Business, Engineering Electronics and Fine/Performing Arts.

A major component of the school design is the implementation of a school-wide data network that will allow any workstation on campus to access a central database of information, share relevant software, and, when appropriate, manage an administration information data file on students, both campus and district-wide. The entire campus will be connected by a video network. ■


Campus center


Rendering


Overview

HIGH SCHOOLS
New Construction

ONATE HIGH SCHOOL
LAS CRUCES, NEW MEXICO
SHW Group & Nims/Calvani

SHW Group & Nims/Calvani
4101 McEwen, Suite 300
Dallas, TX 75244

William Downs
(214) 701-0700

Design team
Jim Hiester
Program/Design

William Wadley
Designer

Ron Nims
Principal-in-Charge

Gary Williams
Project Manager

Matthew Borowski
Landscape

Estes McClure
Mechanical/Electrical

Scenic Equipment
Stage

Southwest Engineering
Civil Engineer

Boner & Associates
Acoustical

Client
Las Cruces Public Schools
(505) 527-5800

Grade span
9-12

Current building capacity
2,000

Current building area
272,320 square feet

Total project costs
$19.8 million

Cost per square foot
$73

Space per student
136 square feet

Cost per student
$9,884

Completion date
August 1993

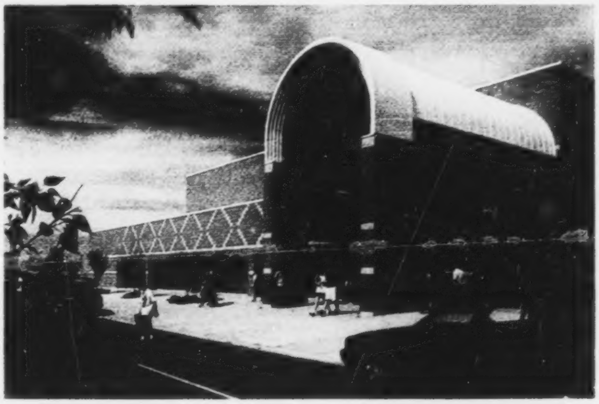
Architectural services were provided by the association of SHW Group, Inc. (formerly SHWC, Inc.) of Dallas, Texas (programming, design, and structural) and Nims, Calvani & Associates of Las Cruces, N.M. (contract documents, bidding, and construction administration).

Onate is designed to accommodate regular school programs plus a wide variety of community activities. The extremes in temperature and windy conditions dictated a "mall type" floor plan so that students can access all areas of the building without going through exterior spaces. The desire to capture the beautiful mountain view led to a long, linear plan that allows for the auditorium, gymnasiums, and commons/cafeteria areas to be accessed from the student parking lots, which also serve the community for after-hours functions. Generally, the noisy areas are separated from the academic areas by centrally located administration, a commons, and the media center.

Site access is arranged for a separation of visitor and parent drop-off, student parking, bus drop-off, and faculty parking.

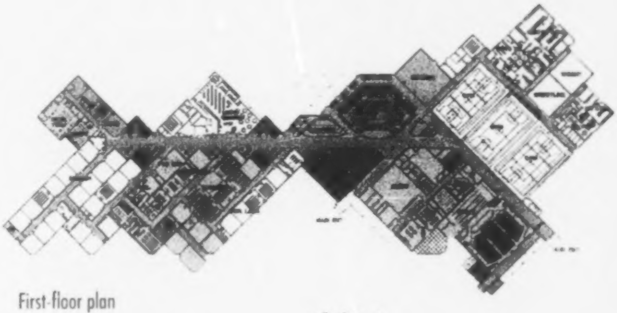
Simple, inexpensive, durable concrete masonry, enhanced by graphics and vibrant colors, reflects the heritage of the region. A portion of the arched ceiling of the "mall" is covered with an insulated, translucent roof system. Extensive technology infrastructure, including a complete television studio and media retrieval center, allows for installation of the latest communications, audio, video, and computer network.

The 600-seat auditorium, 2,000-seat gymnasium, and 650-seat commons/dining areas are most commonly used for community activities. ■



Student entry

Commons/dining



First-floor plan

Academic mall

HIGH SCHOOLS
Addition

PASSAIC HIGH SCHOOL
PASSAIC, NEW JERSEY
LAN Associates, Inc.

LAN Associates, Inc.
662 Goffle Road
Hawthorne, NJ 07506

Kenneth H. Karle, RA
(201) 423-0350

Design team
Kenneth H. Karle, RA, PP, PE
Principal-in-Charge

Michael J. McGovern, RA
Project Architect

William E. Hodges
Construction Administrator

Client
Passaic Board of Education
(201) 470-5500

Grade span
9-12

Current building capacity
4,500

Current building area
260,967 square feet

Building area before addition/renovation
201,893 square feet

Total project costs
$6.5 million

Cost per square foot
$110

Space per student
75 square feet

Cost per student
$8,290

Completion date
September 1995

The Passaic Board of Education's objective was to upgrade its existing science labs and maximize the number of classrooms in response to increased enrollment. LAN's response was to create a state-of-the-art science and technology wing while at the same time maximize the number of academic classrooms and efficiently utilize the only site available for development.

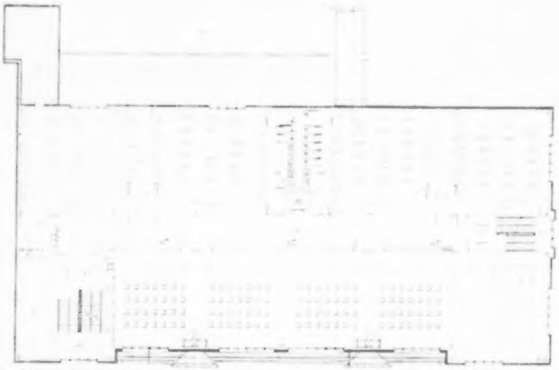
A number of special features of the site and existing buildings brought various design and construction challenges. The dichotomy of architectural styles framing the site required a design approach that would help bridge the gap between these existing structures. This was accomplished by selecting choice materials from both architectural types and specific architectural features of each building.

The site's limited access and size resulted in additional challenges. Due to the rapid growth in enrollment, it was necessary to maximize the footprint available. That resulted in an efficient three-story, double-loaded corridor structure. The design challenge was to articulate the front facade to avoid a box look while maximizing usable square footage and to interconnect the building to the existing high school—not only to diffuse the existing overcrowded corridor circulation system but also to improve the characteristics of the existing building.

The required intercommunication between the new and existing school facilities at various levels was achieved with fully integrated fiber-optics technology and coaxial cables with jacks at each classroom location. This feature allowed connection to a school-wide centralized audiovisual department. Fiber optics were installed for communication and connection with a future high school computer network system. ■

Main north elevation

Science lab


Third-floor floor plan

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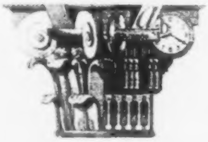
HIGH SCHOOLS
Renovation



1996
ARCHITECTURE AWARD WINNER
LEARNING BY DESIGN

PUYALLUP SENIOR HIGH SCHOOL
PUYALLUP, WASHINGTON

Burr Lawrence Rising + Bates Architects, P.S.

Burr Lawrence Rising + Bates Architects, P.S.
1145 Broadway Plaza,
Suite 1200
Tacoma, WA 98402

Jerry Lawrence, FAIA
President/CEO
(206) 627-5599

Design team
Thomas L. Bates, AIA
Principal-in-Charge

Lee Raymond Fenton, AIA
Project Architect

Tim McDonald
Job Captain

Richard Franklin
Phil Poulos
Lew Brown
Project Team

Tres West Engineers
Mechanical/Electrical Engineers

Chalker Putnam Collins & Scott
Structural Engineers

Armand Marion
Theater Consultant

Michael Yantis
Acoustical Engineer

Barbara Chandler, AIA
Kitchen Consultant

Client
Puyallup School District
(206) 841-8772

Grade span
10-12

Current building capacity
1,450

Current building area
118,418 square feet

Total project costs
$11.83 million

Cost per square foot
$100

Space per student
82 square feet

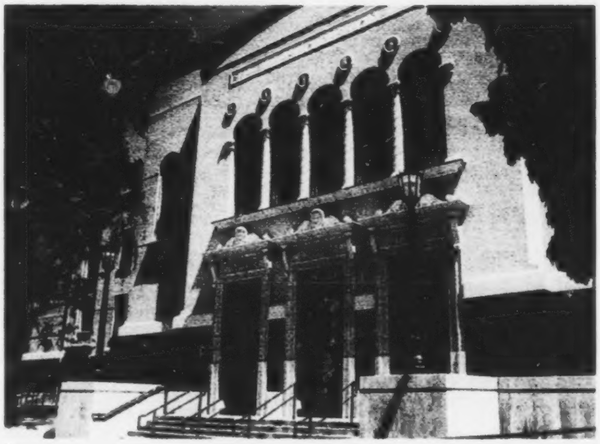
Cost per student
$8,159

Completion date
September 1994

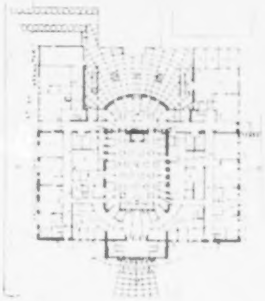
The modernization of this 1910 historic landmark set in the heart of Puyallup, Wash., provided exciting challenges for the design team during every step of the design/construction process.

The project included a complete restructuring of the outer shell and inner core of the building and a complete replacement of all mechanical and electrical systems to bring the building up to current codes.

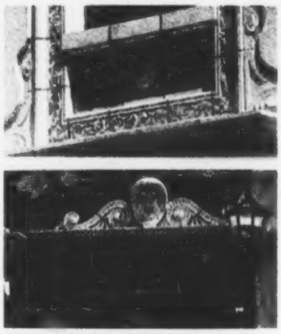
The design provides extensive reorganization of spaces, placing priority on provisions for technologically advanced multiuse teaching stations. Another program requirement was to create a commons space that would provide a much needed central gathering location for students on campus. The design accomplishes this through the adaptive reuse of the existing gymnasium and demolition of the existing boiler room, while also linking the new commons space to the newly accessible historic main entry.



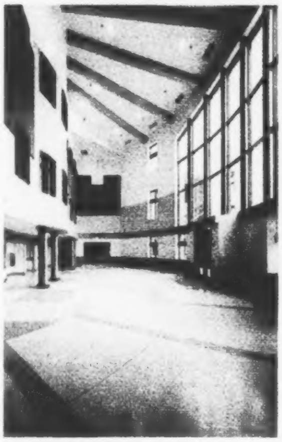
Entrance



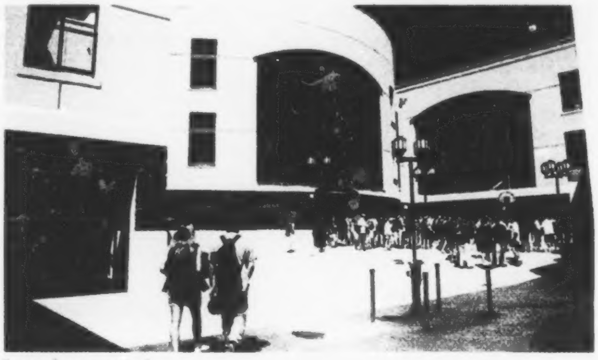
Floor plan



Preserved historical terra-cotta details



Two-story commons



Street plaza courtyard

One of the most difficult challenges of the project entailed a grand restoration of the existing performing arts theater. The architect's meticulous historical research of this existing jewel at the core of the building enabled the space to be restored to its original grandeur and reestablished the center for both civic and cultural pride in Puyallup. ■

HIGH SCHOOLS
New Construction

RED WING HIGH SCHOOL
RED WING, MINNESOTA
Armstrong, Torseth, Skold & Rydeen, Inc.

Armstrong, Torseth, Skold & Rydeen, Inc.
4901 Olson Memorial Highway
Minneapolis, MN 55422

Ken Grabow
(612) 545-3731

Design team
Ken Grabow
Principal-in-Charge

Craig Hinrichs
Project Designer

Myrene Biernat
Project Architect

Don Yungner
Electrical Engineer

John Brady
Mechanical Engineer

Diane Taylor
Interior Designer

Larry McMurtry
Structural Engineer

Client
Red Wing Public Schools
(612) 388-7181

Grade span
9-12

Current building capacity
1,400

Current building area
268,000 square feet

Total project costs
$22.6 million

Cost per square foot
$84

Space per student
191 square feet

Cost per student
$16,142

Completion date
September 1995

The new Red Wing High School reflects the historic architecture of this river town located on a sharp bend of the Mississippi River. The curved building form reflects the river bend and enhances the amenities of the hilly site and wooded ravine.

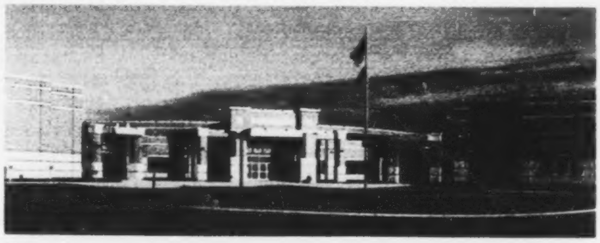
The student commons, administration, and main entry are located in the centralized, curved portion of the building. The circular building form maximizes the views of the surrounding landscape and forms an entry courtyard.

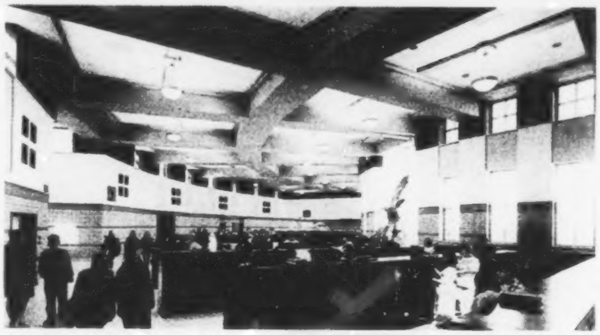
The educational philosophy focuses on a transition from the traditional departmental to interdisciplinary teams, the use of a house concept, and state-of-the-art technology. Classrooms are grouped in a house concept, or "families," to individualize the scale of the large school. Each house has four classrooms, a flexible team learning area (FTLA), and a computer lab.

Foodservice utilizes the "food court" concept similar to a shopping mall.

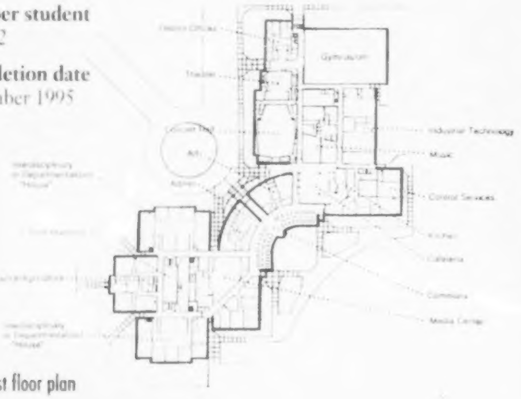
Community groups were involved in designing the high school's concert hall, which complements the historic Sheldon Theater and is utilized by the community and school.

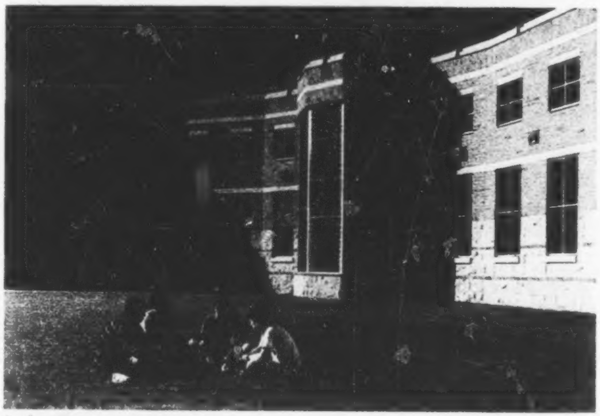
The use of energy-conserving heat-exchange technology is projected to save $120,000 per year. Utilizing efficient chillers, boilers, and variable-speed drives resulted in more than $200,000 in rebates from the local utility company. ■


Main entry


Student commons

Cafeteria


District Offices
Theater
Gymnasium
Concert Hall
Art
Admin
Industrial Technology
Music
Central Services
Kitchen
Cafeteria
Commons
Media Center
Interdisciplinary or Departmentalized "House"
Interdisciplinary or Departmentalized "House"
First floor plan


Student exterior commons

HIGH SCHOOLS
New Construction

SAN CARLOS HIGH SCHOOL
SAN CARLOS, ARIZONA
EMM/SHW Group Architects Engineers Planners

EMM/SHW Group
Architects Engineers Planners
2855 E. Brown Road, Suite 28
Mesa, AZ 85213

Ron Essley, NCARB
(602) 830-3838

Design team
Bill Wadley
J.W. Hiester
Ron Essley
Architects

Client
San Carlos Unified School
District No. 20
(520) 475-2316

Grade span
9-12

Current building capacity
645

Current building area
88,682 square feet

Total project costs
$11.35 million

Cost per square foot
$128

Space per student
137 square feet

Cost per student
$17,593

Completion date
December 1994

San Carlos High School is located on the San Carlos Apache Indian Reservation in Arizona. The building program required initial core facilities (dining area, administration, library, vocational education-al, and music) for 645 students. The school is designed to add classrooms to accommodate 305 additional students to bring the total future student population to 950. The gymnasium has 2,000 seats; there are also outdoor physical education practice courts and a baseball and football stadium.

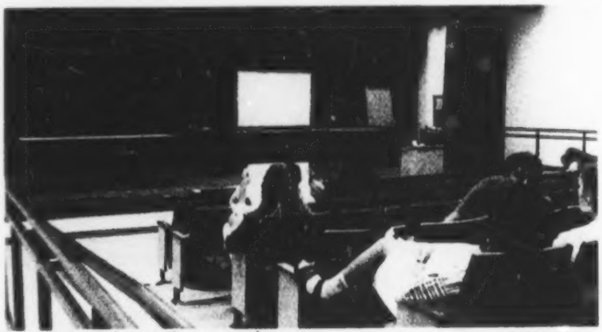
The site consists of approximately 121 acres; the high school uses 50 acres. The remainder includes areas for a new district administration building, faculty housing, and an agricultural complex.

Native American traditions were identified and incorporated into the high school design as architects met on-site with school administrators and staff. Specific traditional design aspects include colors, graphics, building materials, and a building orientation toward the east.

Specific user requirements include creation of a positive image for this rural community, accomplished by utilizing indigenous materials, colors, and graphics. Effective life-cycle value analysis incorporates daylight lighting and energy-management systems. Educational technology systems include a central integrated media-retrieval system and monitor access in each classroom with infrastructure for future computer systems, rooms, video production/distribution facilities, and main-frame management systems. ■

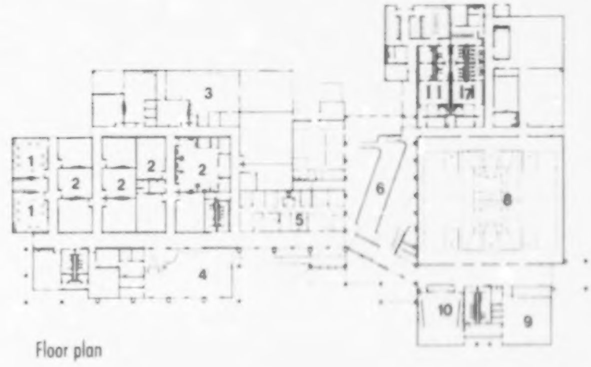
Exterior

Exterior



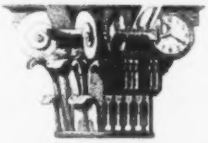
Performing arts lecture, drama, speech room

Physical conditioning room



Floor plan

HIGH SCHOOLS
New Construction



SCHENEVUS CENTRAL SCHOOL SCHENEVUS, NEW YORK

James Jordan Associates, Architects

James Jordan Associates, Architects
81 West Main Street,
P.O. Box 111
Richfield Springs, NY 13439
James M. Jordan, AIA
(315) 858-1820

Design team
James M. Jordan, AIA
Principal-in-Charge
David M. Green, AIA
Project Architect
Sidney M. Katz, AIA
Richard C. Perry
Ronald E. Stafford, AIA
S. Michael Steiger, RA
Darryl J. White, AIA

Client
Schenevus Central School District
(607) 638-5881

Grade span
K-12

Current building capacity
712

Current building area
90,444 square feet

Building area before addition/renovation
51,099 square feet

Total project costs
$4.64 million

Cost per square foot
$100

Space per student
151 square feet

Cost per student
$15,135

Completion date
August 1993

In this town of 1,200, the school is not only the educational center. It is truly the community center—a public gathering place for meetings, sports activities, and community events.

To accommodate a growing population of school-age children, the program for the addition included academic classrooms, science labs, technology areas, and a 700-seat gymnasium. In addition, alterations were undertaken throughout the existing school to improve accessibility, life safety, and lighting.

Occupying a sloped portion of the school site otherwise not usable, the addition takes advantage of the ground contour. This allows incorporation of a lower level for classrooms and built-in future expansion.

The new wing is located to form a courtyard with the existing building and was designed for student gatherings, outdoor concerts, and other community activities.

The gymnasium/locker room complex is positioned for field accessibility and to allow public access after school hours, while securing the academic portion of the building. A concession area is located to serve both the interior and exterior.

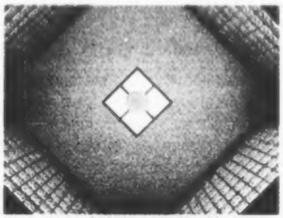
Brick, limestone, and glass block, harking back to the original 1940s building, are repeated in the addition. Detailing and proportions echo the original as well. Skylights, windows, and glass block are all used to maximize the beneficial effects of natural light.

Terrazzo floors and ground face block walls are used for long-term durability and ease of maintenance. ■

Entry

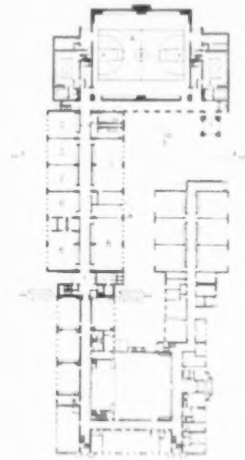
Overview

Main level



Entry tower skylight and glass block

Concessions area



Main level floor plan

HIGH SCHOOLS
New Construction

V.J. AND ANGELA SKUTT CATHOLIC HIGH SCHOOL OMAHA, NEBRASKA

Dana Larson Roubal and Associates/DLR Group

Dana Larson Roubal and Associates/DLR Group
400 Essex Court
Omaha, NE 68114

Thomas E. Penney, AIA
(402) 393-4100

Design team
Thomas E. Penney, AIA
Principal-in-Charge

Mark Brim, RA
Educational Facility Designer

Gary Tilford, RA
Project Architect

Rich Henningsen, AIA
Contract Administration

Client
Catholic Archdiocese of Omaha
(402) 333-0818

Grade span
9-12

Current building capacity
800

Current building area
135,000 square feet

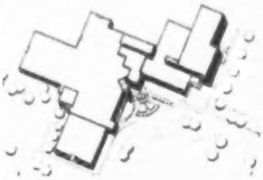
Total project costs
$9 million

Cost per square foot
$67

Space per student
170 square feet

Cost per student
$11,312

Completion date
July 1993

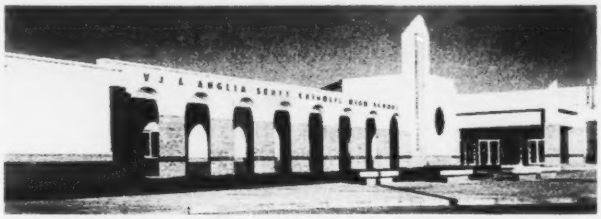

Site plan

The academic and activity programs offered by Skutt Catholic High School are designed to formulate the Christian character and value-centered leadership of students. To emphasize this spiritual focus, the most vertical element of the building is the 40-foot chapel spire located at the main entrance. Inside, the chapel is integrated with the career and counseling center, human and living development, and spiritual departments to emphasize the coordination of these elements in the guidance of students.

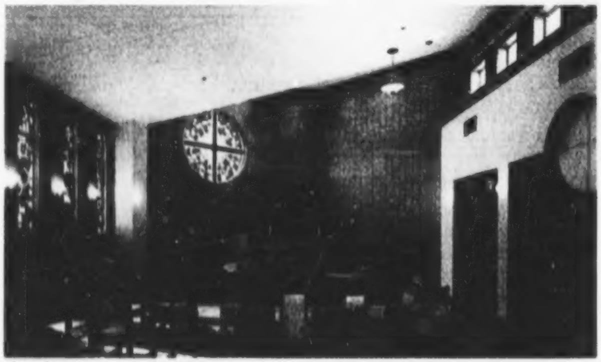
The media center plays a major role in accomplishing the cross-disciplinary and information management academic goals. CD-ROM technology is located both in dedicated and networked computers that access the school's network at more than 330 enabled data ports.

The clustering of classrooms allows for an efficient and flexible building layout. Organized around departmental learning areas, each grouping includes a planning center, two larger classrooms for computer utilization, general classrooms, and resource rooms for special programs. Students receive training in robotics and electronics through computer simulation stations built into the tech education lab.

A multipurpose room with an attached staging area can be utilized for dining, religious liturgies, and school productions and was developed for future expansion. The school is programmed for 800 students, with core facilities to serve up to 1,000 students. ■



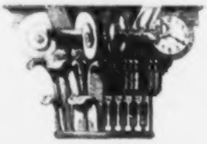
Entrance


Chapel

Multipurpose room

Overview

HIGH SCHOOLS
Addition



SOUTH WESTERN SENIOR HIGH SCHOOL HANOVER, PENNSYLVANIA

Hayes Large Architects

Hayes Large Architects
P.O. Box 1784,
Logan Blvd. & 5th Avenue
Altoona, PA 16603
Richard L. Karcher, AIA
(814) 946-0451

Design team
Richard L. Karcher, AIA
Principal-in-Charge
Vern L. McKissick III, AIA
Project Manager
Henry D. Brunett
Project Designer
Susan L. Kasun
Interior Designer
Craig D. Meadows
Equipment Planner

Client
South Western School District
(717) 632-2500

Grade span
9-12

Current building capacity
1,600

Current building area
267,000 square feet

Building area before addition/renovation
141,478 square feet

Total project costs
$17 million

Cost per square foot
$82 (additions)
$52 (alterations)

Space per student
166 square feet

Cost per student
$10,656

Completion date
December 1994

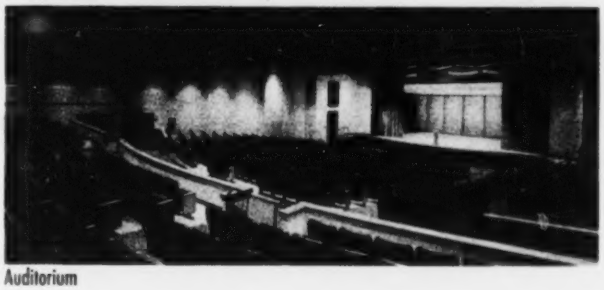
The South Western Senior High School shares a 100-acre rural site with its sister facility, the Emory H. Markle Intermediate School. At nearly 270,000 gross square feet (more than six acres of building), the facility is the centerpiece of the campus. Flanked by the intermediate school and a 7,000-seat varsity football stadium and track, these additions and alterations took more than three years to complete without disrupting the educational curriculum.

Central to the design solution was the need to accommodate more than 600 additional students while upgrading and softening the public facade. The cornerstone of the project is the new 2,000 seat, three-gymnasium fieldhouse with a bow-string trussed roof. All mechanical equipment for this air-conditioned space is enclosed within an integrated appendage, leaving the expansive, curved, ivy-green metal roof without a single penetration. The former gymnasium has been converted to a new media center totaling more than 200,000 cubic feet of volume. The expanded auditorium was completely refurbished and equipped for extensive theatrical presentations.

Both the new auditorium and gymnasium occupy anchor positions along the front of the nearly 600-foot-long main facade. Other public functions were pulled to the front of the complex and connected to the anchors via a new 160-foot radius arcade. The continuous glass arcade provides passage along the entire public realm of the building. New entries include barrel vault skylights that echo the shape of the fieldhouse roof and allow the facade to be completely re-imaged.

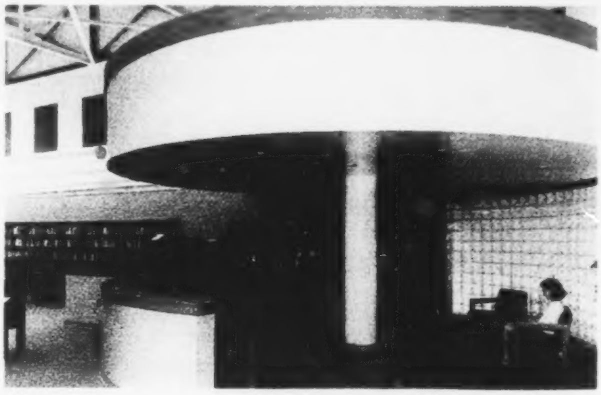
Classrooms and technical support areas are located within three wings that branch off the public spaces and extend to the rear of the facility. ■

Main entrance

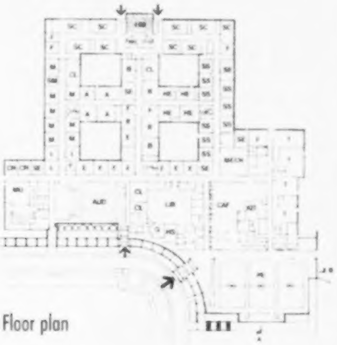


Auditorium

Entry lobby



Library reading area



Floor plan

HIGH SCHOOLS
Addition

STEUBENVILLE HIGH SCHOOL
STEUBENVILLE, OHIO
Lesko Associates, Inc.

Lesko Associates, Inc.
Gemini Tower II,
2001 Crocker, Suite 200
Cleveland, OH 44145

Nicholas Lesko, FAIA
(216) 835-0850

Design team
Nicholas Lesko, FAIA
Project Administrator

Edward Lesko, AIA
Partner-in-Charge Design

Richard Deming, AIA
Project Architect

Client
Steubenville City School
District
(614) 283-3767

Grade span
9-12

Current building capacity
900

Current building area
107,452 square feet

Total project costs
$9.63 million

Cost per square foot
$90

Space per student
83 square feet

Cost per student
$107

Completion date
August 1994

The program called for an extensive addition to a 50-year-old high school. The existing building is located in an urban area on an extremely limited site, bounded by streets on three sides and a major highway on the remaining side.

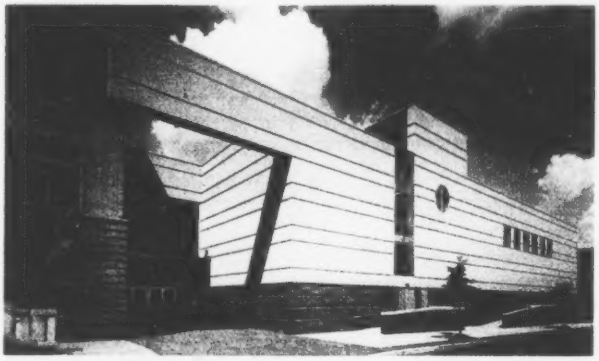
The new addition was built to the limits of the property lines. It consists of a swimming pool, cafeteria commons, kitchen, and gymnasium with a suspended running track.

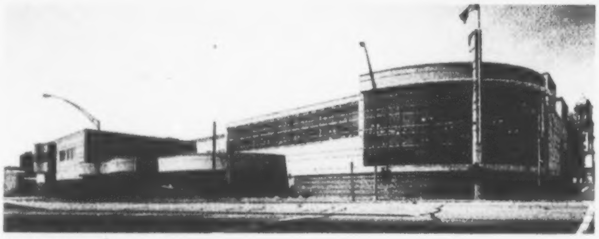
Architecturally, the addition was designed to relate to the existing building by employing similar materials and by creating forms and massing that would reinforce the feel and look of the older building, which has an "art deco" style. To further unify the old and the new structures, a large expanse of glass on one wall of the cafeteria/ commons area and a courtyard were designed to offer a view of the existing school.

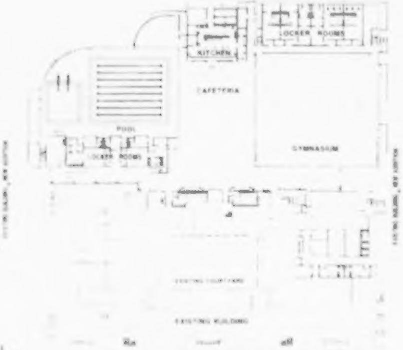
A main corridor or "pedestrian way" runs the entire length of the addition, providing a well-defined separation from the original building that contains the academic area, arts, music, and so forth. Public access to the new facilities is from either end of this corridor. This dramatic, tall corridor with its display areas and natural light from above provides convenient entry to the swimming pool, cafeteria commons, and gymnasium.

A large clerestory runs continuously through the pool, cafeteria commons, and gymnasium. It visually ties them together and provides an abundance of natural light that enhances the volume of the spaces themselves.

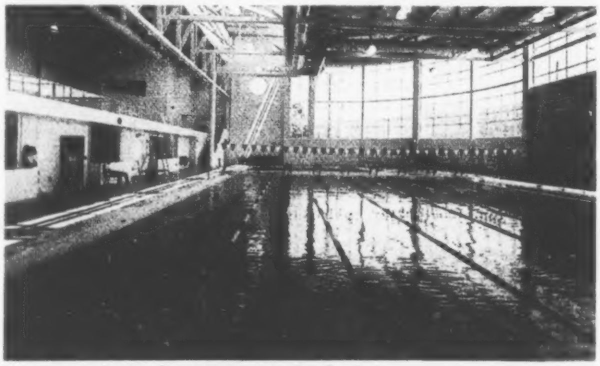
Because the new addition is built to the property line and on a major highway along the Ohio River, the lower portion of the building screens out the highway. Ample glass areas above—in the pool, cafeteria, and running track—provide dramatic views of the mountains of West Virginia and the Ohio River. ■


Entry


Exterior view of natatorium



Floor plan


Natatorium with view of West Virginia over the Ohio River

HIGH SCHOOLS
New Construction

WARREN CENTRAL HIGH SCHOOL INDIANAPOLIS, INDIANA

Fanning/Howey Associates, Inc.

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3750 Priority Way South Drive,
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Indianapolis, IN 46240
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Back-up Principal-in-Charge
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Project Manager/Designer
James K. Perkins, ASLA
Landscape Architect
Ronald J. Hunt
Mechanical Engineer
Alvaro Villalta, EIT
Electrical Designer
Max E. Roler
Construction Administrator

Client
Metropolitan School District of
Warren Township
(317) 898-5935

Grade span
9-12

Current building capacity
3,000

Current building area
725,000 square feet

Building area before addition/renovation
600,000 square feet

Total project costs
$27.25 million

Cost per square foot
$95

Space per student
240 square feet

Cost per student
$9,080

Completion date
1995

The additions and renovations to Warren Central High School respond to the needs of changing curriculum, increased student enrollment, and repair/replacement of obsolete and inefficient building systems.

The existing building contained 600,000 square feet, housing Grades 10 through 12 as well as the Walker Career Center, which houses the district's vocational training programs. The educational program called for an expansion of the building capacity to handle 3,000 students in Grades 9 through 12. This resulted in 125,000 square feet of new construction.

A critical element of the planning process included the requirement that construction would occur while the school remained in operation. Strategic planning from the start of the design process allowed construction and education to coexist.

The general concept, developed with significant input from staff and numerous meetings with the community at large, provided new construction space to accommodate a new media center, kitchen, and cafeteria. The existing kitchen, cafeteria, and media center were converted into the additional classrooms required to house the increase in enrollment. By following this plan, the school was able to continue operations without any loss of function during the construction process. This concept also allowed for the development of an independent area to house the ninth grade—effectively, a school within a school.

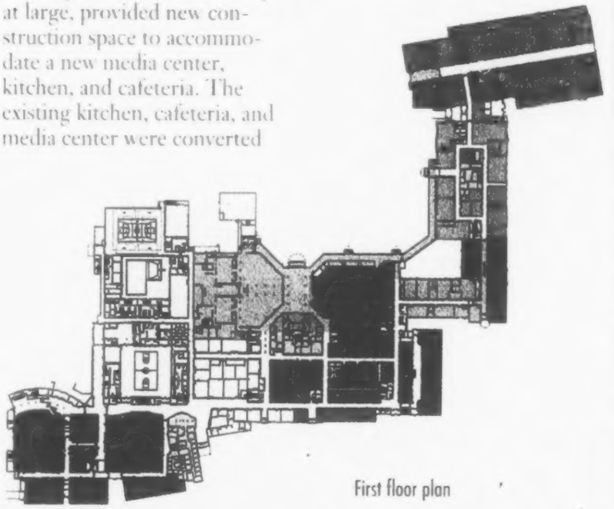
The formal entrance existed on the south side of the building. The practical conditions of the site dictated that most traffic enter the building site from the north. In developing a comprehensive response to all design parameters, the new design reflects a new entrance appropriately located on the north side of the building.

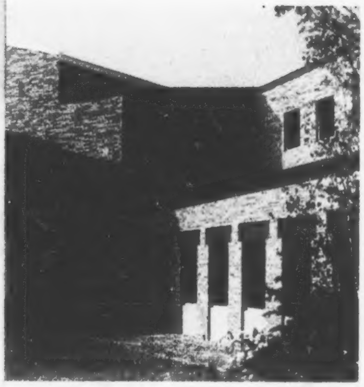
The new main entrance logically delivers students and visitors to the commons, which is the main organizational feature for the entire complex. The size of the commons facilitates the flow of large numbers of students as well as supports after-school activities. It is also the location to gain access to administration, food service, and the media center.

The media center is a large, flexible space with natural light and an abundance of support

WARREN CENTR
Front exterior

Second floor detail


First floor plan



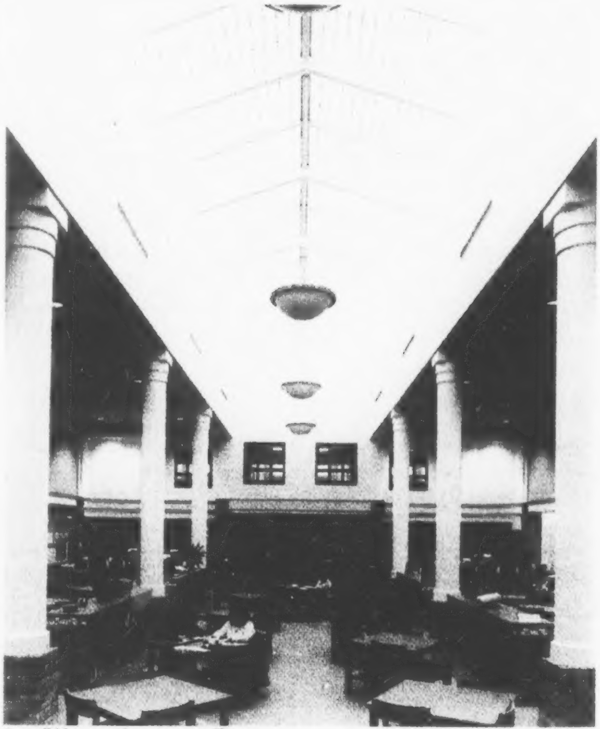
Interior entry, skylit commons

spaces serving online searching. A computer lab for research and report writing is among the services available to students. The media center is also networked with all classrooms throughout the building.

To facilitate the upgrade/replacement of the building system (heating, ventilating, air conditioning, electrical, sound, and technology), a new central power plant was constructed to serve the reconfigured building. Tremendous coordination was required to allow existing systems to continue operating while new systems were sequentially brought on line.

Many energy-conservation measures were incorporated into the project to respond to today's unique requirements. Improvements to indoor air quality were accomplished and responded to new refrigerant guidelines. High-efficiency systems designed to require less energy consumption were provided throughout the facility. To reduce the existing energy load, new insulation systems were provided for the roof and the exterior wall. Typical to buildings of its generation, the original design used a significant amount of "window wall." Creative use of an exterior insulation system resulted in a reduction of window area and provided a fresh new appearance for the building.

After a thorough feasibility study and interactive design communication with the staff and the community, Warren Central High School has been thoroughly revamped. New educational spaces are designed to reflect flexibility in responding to ever-changing educational needs. Existing spaces are upgraded and completely refurbished, providing a comprehensive high school facility that will serve Warren Township well into the 21st century. ■



Overall library with perimeter offices

Computer lab portion of media center

181

HIGH SCHOOLS
New Construction

1996 ARCHITECTURAL AWARD WINNER

WOOSTER HIGH SCHOOL
WOOSTER, OHIO
Lesko Associates, Inc.

Lesko Associates, Inc.
Gemini Tower II
2001 Crocker, Suite 200
Cleveland, OH 44145

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Project Administrator

Edward G. Lesko, AIA
Partner-in-Charge Design

Harold Armstrong
Educational Planner

Victor Krevinko
Project Manager

David Andreano, AIA
Technology Specialist

Client
Wooster City School District
(216) 264-0869

Grade span
9-12

Current building capacity
1,200

Current building area
386,000 square feet

Total project costs
$28.4 million

Cost per square foot
$74

Space per student
241 square feet

Completion date
August 1994

Main entry court

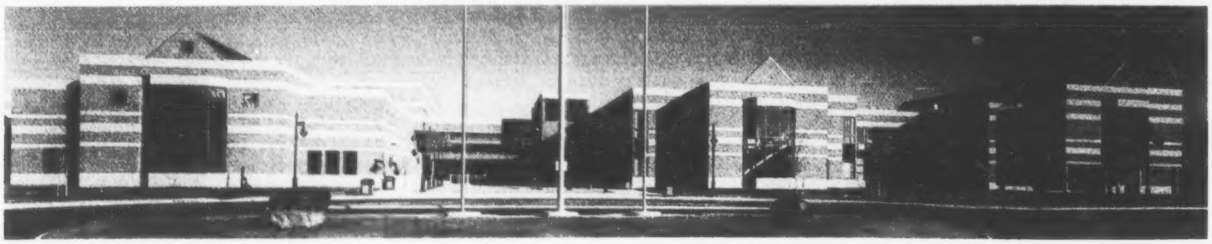
The architect's challenge for the new comprehensive Wooster High School, which replaces a school built in 1870, was to design a facility that would incorporate a state-of-the-art technology, serve the needs of both students and community, create vitality and excitement, and be the yardstick by which educational facilities that transcend into the 21st century could be measured.

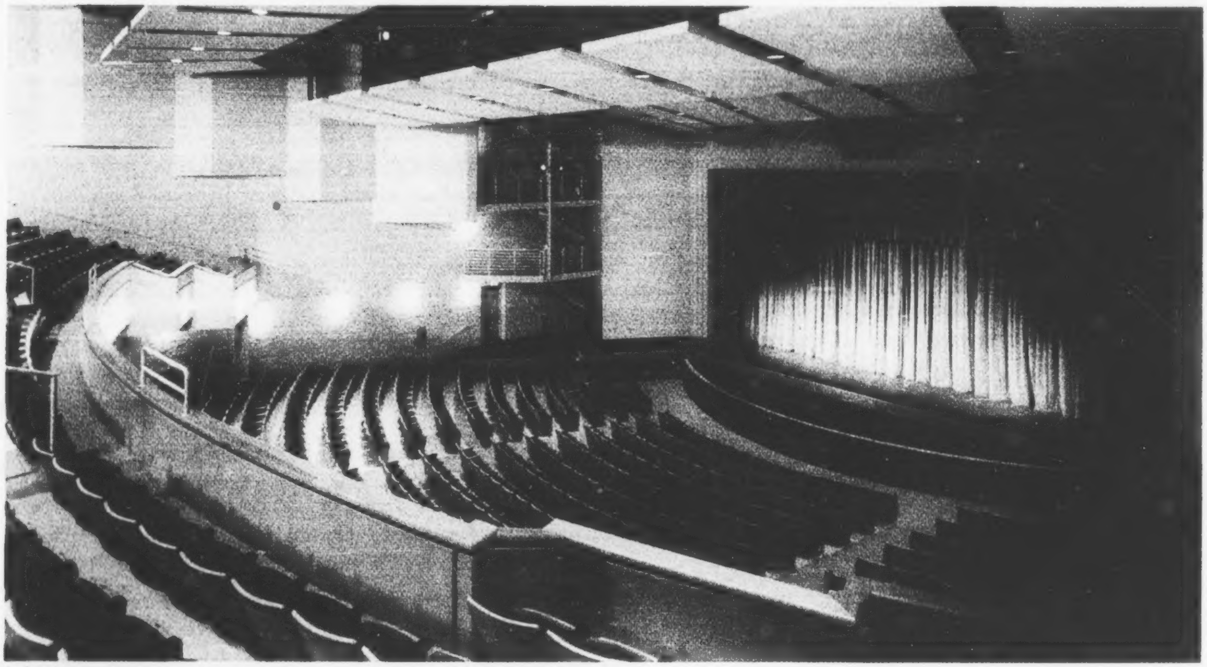
With the school placed on a 75-acre site located across from an elementary school and athletic fields, a large campus was created. Designed in a rectilinear configuration, the building's long facade is broken up by a series of "gabled" wings that protrude from a main circulation corridor. These forms define five distinct elements along the front of the school, which develops a traditional feel and reflects the character of the original high school and the community. Contrasting horizontal beige-brick accent banding, bay windows, peaked roofs, and a great deal of natural light provide both character and vibrant patterns of light and shadow.

The academic areas, located in close proximity to a dramatic, skylighted media center and large-group lecture room, are strongly organized. Classrooms are all designed with natural light, and skylights also brighten the interiors of the multimedia center, cafeteria, natatorium, and corridors. This provides a pleasant environment for the multifunctional, large-scale complex. Effective use of inexpensive materials and careful attention to detail brought the school under budget.

Located close to the main entrance, the two-story 1,000-seat performing arts center features an orchestra pit, full stage, and balcony. Careful

Library/media center


Main facade



Auditorium

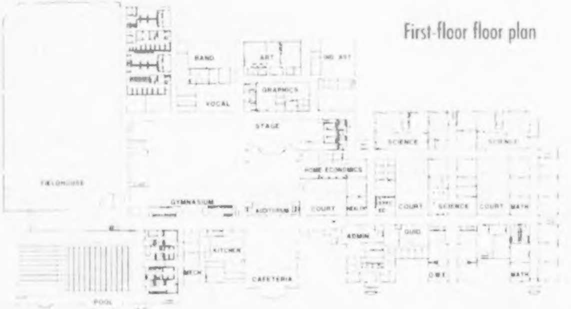
Natatorium

planning provides for the flexible community-oriented facility to be utilized around the clock and calendar while the administrative and educational wings remain secure.

Emphasis was placed on incorporating the latest technology in computer and telecommunications systems. Each classroom is equipped with a telephone, a 27-inch monitor, and a computer. Classrooms are serviced by a computer control room that includes a connection to the Internet and full database retrieval from the media center.

Featuring an eight-lane swimming pool with bleacher seating for 1,000 and a competitive dive area, the Ellen Shapiro Natatorium has a separate pool area devoted solely to community use. The 55,000-square-foot Gault Field House and Fitness Center, incorporated after the project was started, features a 200-meter, six-lane running/walking track and four full-size basketball courts.

A 5,000-seat football stadium includes an eight-lane, all-weather running track. A unique feature of the complex is a planned arboretum that will provide an educational ecological area with 200 trees native to Ohio, a one-mile walking path, and an outdoor amphitheater. ■


BAND
ART
IND. ART
GRAPHICS
VOCAL
STAGE
SCIENCE
SCIENCE
HOME ECONOMICS
FIELDHOUSE
GYMNASIUM
AUDITORIUM
COURT
HEALTH
SPEC ED
COURT
SCIENCE
COURT
MATH
ADMIN
GUID
KITCHEN
MECH
CAFETERIA
POOL
MATH

First-floor floor plan

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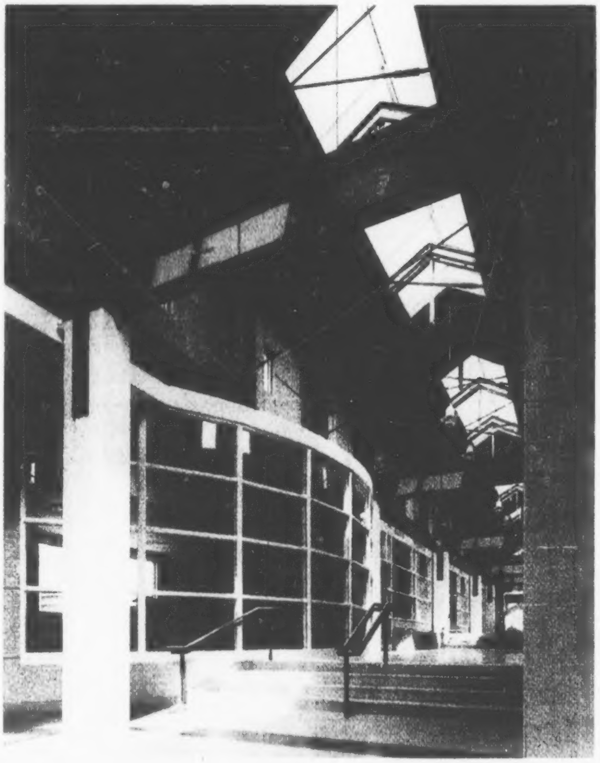
A DIFFERENT APPROACH TO DESIGN

By Sandra R. Sabo

Like many districts, the Penn-Harris-Madison School Corp. in Mishawaka, Ind., anticipates another 10 to 20 years of growth, along with the continual construction projects that inevitably accompany a surge in students. The 10,000-student district just opened its ninth elementary school and already has begun talking of a tenth; a new middle school is scheduled to open this fall.

In designing Discovery Middle School, says Doug Wickstrom, a principal and project designer in the Michigan City, Ind., office of Fanning/Howey Associates, Inc., "we began by looking at [the district's] existing schools, how [it was] using them, and what ways the current facilities might be getting in the way of optimal usage. We talked about how education has changed and where trends may go in the future. Then we developed a written program and a visual version that shows all the spaces of the building drawn to scale." *(Editor's Note: Not to be confused with Discovery Middle School; Vancouver, Wash.,* Learning By Design*'s 1996 Grand Prize Winner.)*



That approach worked well for John R. Gardner, a member of the district's design team. But while he likes the result of the team's efforts, Gardner thinks the process could be further improved in terms of efficiency and accuracy. "The average school building has an active life of 50 years," says Gardner, assistant principal at Penn High School. "I felt there was so much more we could have communicated so the architect [Wickstrom] would have better known who we are and what we'd like to have."

Gardner also believes that the team didn't tap the full potential of all its members. "For example, one community member had been an interior decorator. She had a lot she wanted to share, but she ended up being quiet because she didn't know how to communicate her ideas in educator lingo," he says.

Those minor frustrations prompted him to collaborate with Wickstrom on *Authentic Architecture*, a workbook designed to stimulate as well as organize ideas for a new school. As its name implies, Authentic Architecture's goal is to design a school that is special yet real, one that reflects and resonates with the community. The workbook's text and instructions help a design team funnel a wide range of information into a targeted collection of ideas on which the architect can then base a design.

The flip side

By employing different thought processes from the outset, the authors reason, a team can avoid the repetitive back-to-the-drawing-board cycle that often plagues construction projects. Instead of simply reacting to whatever the architect presents, team members visualize what they want the school to be and advise the architect accordingly.

"Most school administrators know how to think deductively. That is, they are good at defining problems, then seeking and evaluating different solutions to them. But applying information to school reengineering demands inductive thinking—the ability to first recognize a powerful solution and then seek the problems it might solve," says Gardner. For example, many school districts think in terms of existing processes. They ask, "How can we use these new technological capabilities to enhance, streamline, or improve what we are already doing?" A more appropriate question, suggests Gardner, is, "How can we use technology to allow us to do things that we are not already doing?"

To encourage a design team to look at architectural issues from a different angle, he recommends mind-mapping exercises such as sketching out relationships between different educational spaces (what is the student commons close to? what is it isolated from?). Before getting down to the serious business of designing a new school, he also advocates having fun with creative-thinking games, such as those devised by Roger von Oech, author of *A Whack on the Side of the Head*.

Authentic Architecture reverses the traditional process many design teams follow. The first worksheet encourages you to choose a school name, mascot, nickname, and colors—decisions usually made long after the district has signed off on a design. "If you say the colors will be green and white up front, you've established a visual climate and opened the door to a continuity of ideas. In other words, you can work those colors into the design, rather than design a generic school and tack on its colors later," Gardner points out.

Other worksheets help you quantify your reactions toward other schools you've visited; gather information from principals, teachers, and students; and "think at right angles" by addressing issues both emotionally and intellectually. Say, for instance, that your design team was grappling with ideas for the cafeteria. In one column you'd list facts, such as the need to hold 1,200 students at one time and offer an unobstructed view. In another column you'd write down your feelings about the cafeteria—perhaps the desire that it appear warm and welcoming and also offer students many food choices. The architect then meshes the factual and emotional components together when finalizing a design.

Collecting and refining ideas

Authentic Architecture looks at designing a school in these three stages, each referred to as a "folio":

I. Masterfolio (Purpose). Taking their cues from the worksheets, team members collect their ideas about a new school based on visits to existing buildings, preconceived notions, and personal preferences. Each also lists all the required spaces for the new building. Together, the group then generates a list of educational spaces and how they relate to one another. Like traditional brainstorming, this stage accommodates all ideas with no judgment passed on whether they are good or bad.

The team also writes a brief historical background with details such as how long the school has been in existence, famous alumni, and well-known programs. The background for a new school might include information on former owners of the land or previous uses—tidbits that may later spark a design idea.

II. Processfolio (Process). At this point, the group begins weeding out some ideas and refining others. Consensus must be high, although not 100 percent, before an idea stays or goes. The team also writes a brief description of the instructional program, and each member completes a detailed "Educational Specifications Questionnaire" for a specific program area such as math or science.

The questionnaire addresses topics such as:

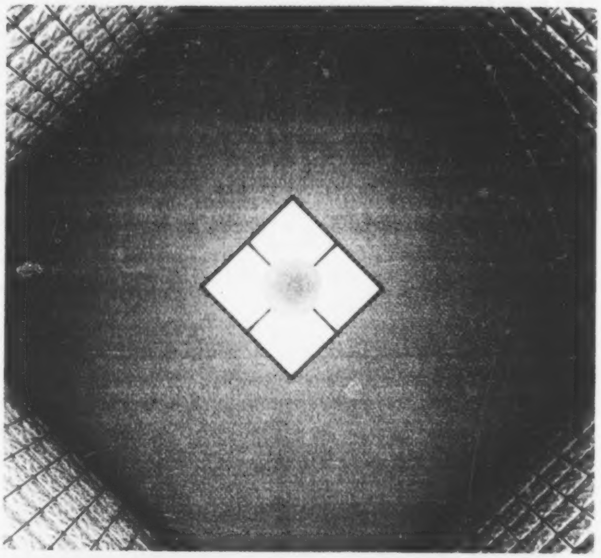
- **Objectives and Outcomes**. What activities will occur in the area, and how many users are anticipated per grouping?
- **Space**. How much should be devoted to classrooms and to storage?
- **Variables**. What special furniture, equipment, or display space is needed? What kind of environmental controls are desired (for example, adjustable lighting, operable windows, carpets or tile floors, window blinds)? Beyond the basics required by building codes, how many electrical outlets or computer hookups would be helpful?
- **Flexibility**. How might the teaching areas be reconfigured (each day, each week, or each year)?

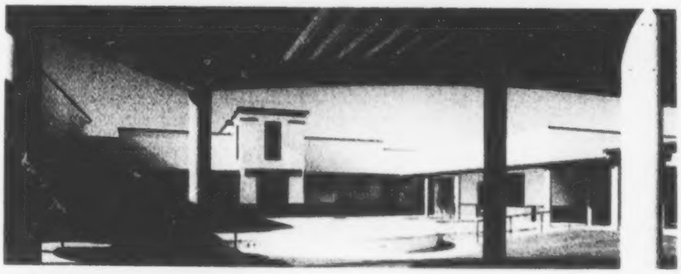
III. Portfolio (Product). Individuals' ideas are reviewed and refined again; those that don't achieve high consensus among group members are eliminated. "The vision of the final product begins to emerge, resulting in a collection of final ideas for reflection and evaluation," explains Gardner. "At this point, you will have constructed on paper a school that reflects the group's collective vision of a place for housing the curriculum that will meet your students' educational and emotional needs, community needs, and budget restrictions."

Reflection of the community

Because all members of the design team have the opportunity to express themselves through the worksheets, Gardner believes, they're less likely to throw up their hands in frustration and tell the architect, "Just build us a nice school."

Involving community members on the team is key, he adds—not just to give taxpayers a voice but also to represent the people who will use the facilities in addition to students. "As good as the design for one school is, you can't advocate a cookie-cutter approach. What works in an urban area isn't going to fly in a rural or suburban area because every community is different." For example, says Wickstrom, the Penn-Harris-Madison School Corp. "is essentially a rural school district with no metropolitan center. The schools are the center of the community in an entirely different way than if it were a school district that overlapped with a city." As a result, Wickstrom designed the new elementary school with an outside track, tennis courts, and play facilities all intended for community use. The soon-to-open middle school features a two-level gymnasium, with a walking track on the second level designed for use by senior citizens before and after school.





"The places we provide for our children's development and learning say a lot about us," says Gardner. "If architectural historians are correct when they say, 'You can tell what a society values by looking at its skyline,' then we can assume that tomorrow's schools will be significant reflections of our communities' pride and commitment to the future." ■

Sandra R. Sabo *is a freelance writer in Mendota Heights, Minn.*

Authentic Architecture is an in-house publication of Fanning/Howey Associates, Inc., an architectural, engineering, and consulting firm. For more information, contact Doug Wickstrom, Fanning/Howey, 114 York St., Michigan City, IN 46360; (219) 872-0635.

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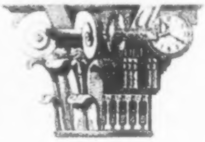
6-12
New Construction



ALBUQUERQUE ACADEMY ALBUQUERQUE, NEW MEXICO

Shepley Bulfinch Richardson and Abbott

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40 Broad Street
Boston, MA 02109

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Alexander Howe
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Kevin Triplett
Job Captain

Bart Lawrence
Job Captain

Linda Lamoreaux
Interior Design

H. Van Gilbert
Associate Architect

Client
Albuquerque Academy
Timothy R. McIntire,
Head of School
(505) 828-3201

Grade span
6-12

Current building capacity
Library: 500; Science Center: 500

Current building area
Library: 45,000 square feet; Science Center: 55,000 square feet

Total project costs
$13.3 million

Cost per square foot
$127

Space per student
90 square feet

Cost per student
$13,300

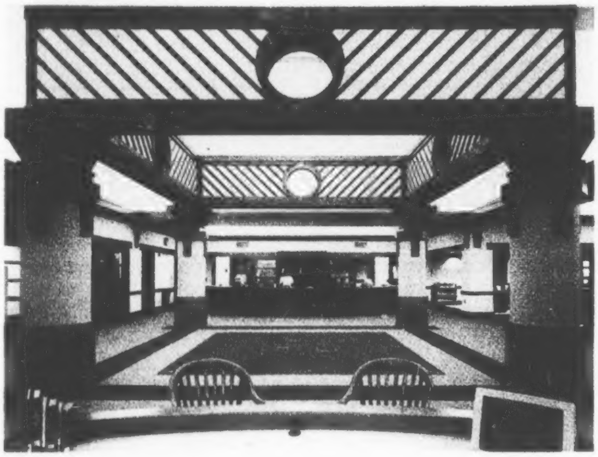
Completion date
May 1991

The academy is sited on 300 acres outside Albuquerque, with a dramatic view of the Sandia Mountain Range to the east and the Mesas to the west. The master plan developed by SBRA creates an integrated campus, establishing strong visual and organizational links between the upper and lower schools.

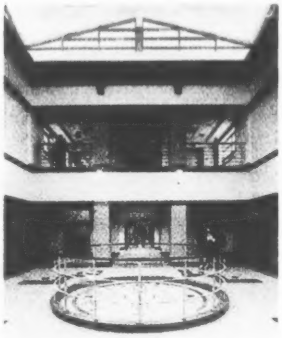
The library and science buildings were sited according to this master plan. Located mid-campus, they frame a central plaza, with the existing tree-lined roadway connecting the schools converted to a carefully landscaped pedestrian path. The library tower and double-height lobby of the science center provide a strong central focus for the campus.

The 55,000-square-foot science center is composed of distinct volumes housing classroom, laboratory, and office functions and is linked by student interaction areas. These individual volumes are organized around a courtyard where outdoor experiments can be conducted.

Library entrance



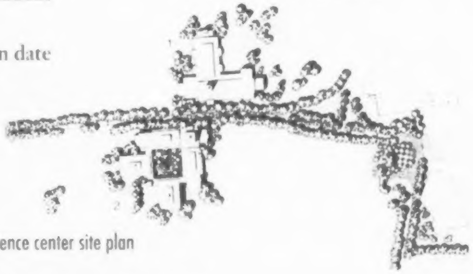
Library lobby



Science building main lobby

Designed as a single-story building, the 45,000-square-foot library is planned for use by both the upper and lower schools as well as by the local community; it houses 100,000 volumes and 500 readers. High clerestories introduce daylight; major reading and seminar rooms have unobstructed views of the Sandia Mountain Range.

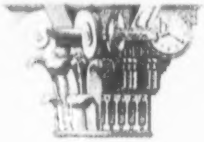
Sweeping roof lines and low massing recall traditional architecture of the Southwest. Each building is sited and detailed for protection from sun and prevailing winds. ■



Library and science center site plan

Library from west

K-12
Special-Purpose Facility



LAKE POWELL SCHOOL
BULLFROG, UTAH
Valentiner Crane Architects

Valentiner Crane Architects
524 South 600 East
Salt Lake City, UT 84102

Steve Crane, AIA
(801) 575-8800

Design team
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Principal-in-Charge

Brent Tippets, AIA
Project Architect

Client
National Park Service
(520) 608-6335

Grade span
K-12

Current building capacity
120

Current building area
20,802 square feet

Total project costs
$1.15 million

Cost per square foot
$105

Space per student
173 square feet

Cost per student
$9,583

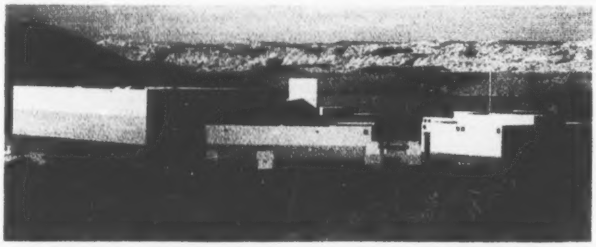
Completion date
1995

Lake Powell is the lifeblood of the communities in the remote Glen Canyon National Recreation Area. The new Lake Powell School unites tiny communities and the two school districts that serve them.

Students hail from three counties. A third of the students arrive via a school bus ferried across the lake. All students have an unobstructed view of the lake as they approach the campus central spine that runs from the parking lot and extends to the lake. This central spine is symbolic of a boat dock and acts as a collector to organize pedestrian circulation to each of the buildings, which are like boats parked at the dock. At the center of the dock is a true-to-scale Anasazi Indian kiva that is used as an outdoor classroom and accommodates community activities.

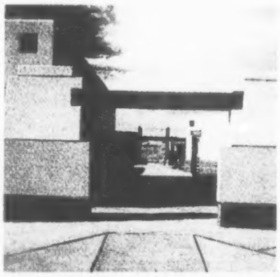
The National Park Service requires that no construction occur on undisturbed, natural land. So the school had to be constructed on an abandoned, drained, sewer lagoon. All structures must fit the site and blend into the environment. The exterior color bands of stucco and masonry echo the surrounding rock stratifications and horizontal formations.

The design was influenced by additional community requirements such as wedding receptions, campfire lectures, community athletics, historical artifacts displays, and adult distance-learning programs. ■

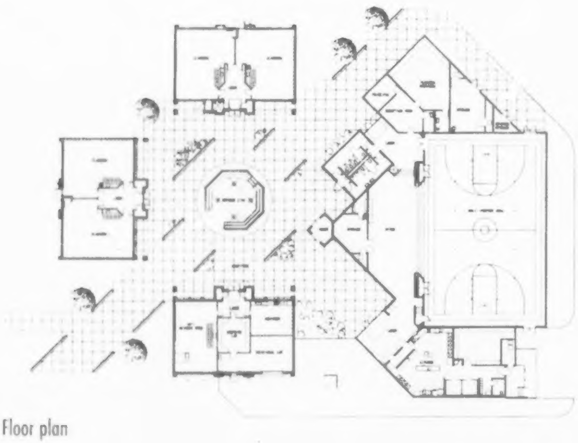


Overview

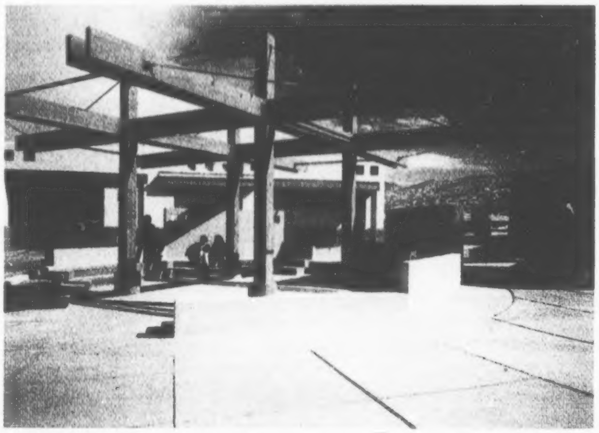
Courtyard with lockers



View into courtyard

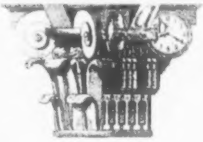


Floor plan



Outdoor kiva

K-12
Addition



NORTH TONAWANDA HIGH SCHOOL/MEADOW ELEMENTARY SCHOOL, NORTH TONAWANDA, NEW YORK

TRM Architect

TRM Architect
15 Willow Ridge
W. Amherst, NY 14228

Thomas R. Moscati
(716) 691-0395

Design team
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Principal-in-Charge

Larry P. Beck
Associate Project Architect

Jeff Brussel
Project Architect

Client
North Tonawanda School District
(716) 694-3206

Grade span
Student Activity Center: 1-12;
Early Childhood Education Center: K-5

Current building capacity
High school: 1,945
Elementary: 876

Current building area
High school: 261,890 square feet
Elementary: 83,950 square feet

Building area before addition/renovation
High school: 213,175 square feet
Elementary: 41,500 square feet

Total project costs
High school: $6.1 million;
Elementary: $3.1 million

Cost per square foot
High school: $125
Elementary: $73

Space per student
High school: 135 square feet;
Elementary: 96 square feet

Cost per student
High school: $3,141;
Elementary: $2,523

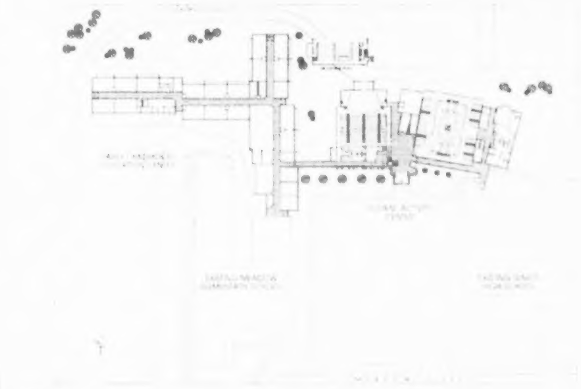
Completion date
September 1995

In February 1990 the North Tonawanda school board charged TRM Architect with designing the $9-million Phase II expansion to the Meadow Educational Campus. The challenge as set forth by Dr. John George, the district's superintendent, and residents of North Tonawanda was to incorporate two major educational centers—the Student Activity Center and the Early Childhood Education Center—into the existing campus to unite the campus both physically and functionally, while at the same time retain the identity of the individual structures.

This addition includes:

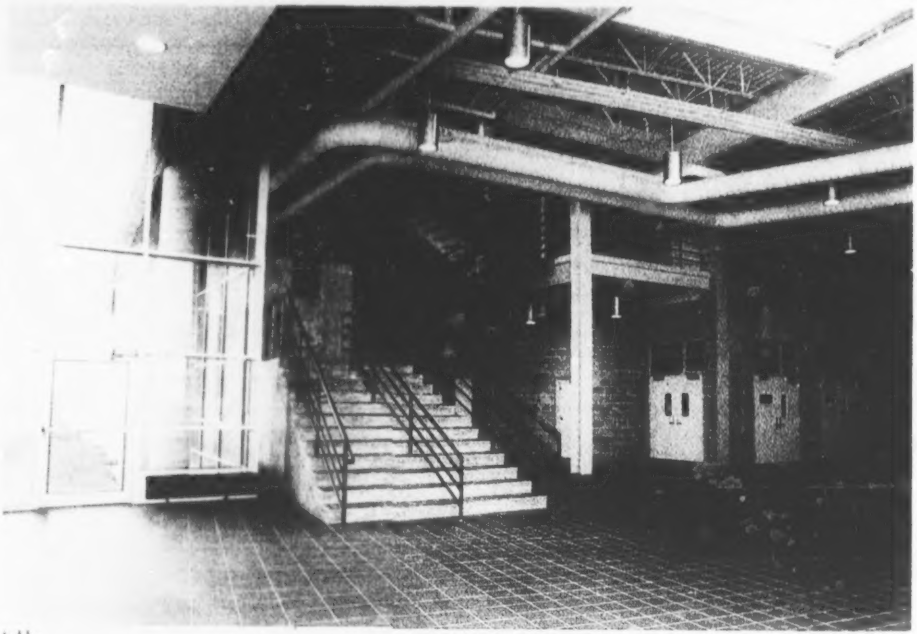
■ A 28,613-square-foot air-conditioned performing arts center, whose first 800 seats retract to provide space for an elementary physical education center. The remaining 400 seats in the mezzanine area can also be separated with a retractable wall to provide a more intimate lecture space.

Main entrance to student activity center



Site plan

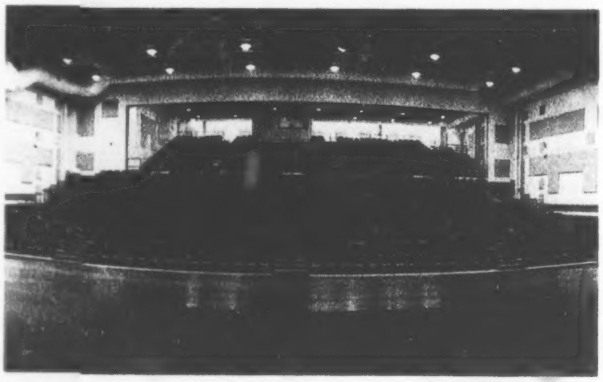
Gymnasuim


Lobby

The stage combines the latest in acoustical, lighting, and stage equipment to provide one of the largest, most versatile stages in western New York for year-round use.

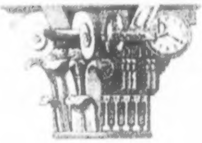
- A 20,102-square-foot athletic facility, which contains a collegiate-size basketball court with seating for more than 1,000 and ultra-modern locker/shower/coaches offices with a direct link to exterior playing fields. Both major spaces of the Student Activity Center feature a new application of a tested building technology: load-bearing insulated precast concrete panels that provide the solid nature and durability of masonry at a fraction of the cost.
- A 43,000-square-foot Early Childhood Education Center has a flexible design that accommodates the latest programmatic school requirements of staff and student day care. It provides accommodations for physically and mentally challenged children and facilities for the latest computer and audiovisual technologies.

While linking the existing high school to the existing elementary school with gallery spaces for athletic and visual/performing arts walls of fame, the Student Activity Center provides an independent year-round and nighttime focus to the campus. The high school "wraps" in from the west to control the scale of the large gymnasium, while the elementary school "wraps" in under the projection of the arts center to join at the formal entrance to the campus. ■


View from stage

Performing arts center

K-12
New Construction



ST. JOHN SCHOOL
ST. JOHN, NORTH DAKOTA
Smith Geston Duffy

Smith Geston Duffy
660 lst Avenue North, Box 828
Fargo, ND 58107-0828
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Principal-in-Charge of Production
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Project Manager
Kadrmas Lee & Jackson
Civil and Structural Consultants
Prairie Engineering
Mechanical and Electrical Engineering

Client
St. John School District No. 3
(701) 477-5651

Grade span
K-12

Current building capacity
350

Current building area
47,000 square feet

Total project costs
$4.86 million

Cost per square foot
$103

Space per student
134 square feet

Cost per student
$13,871

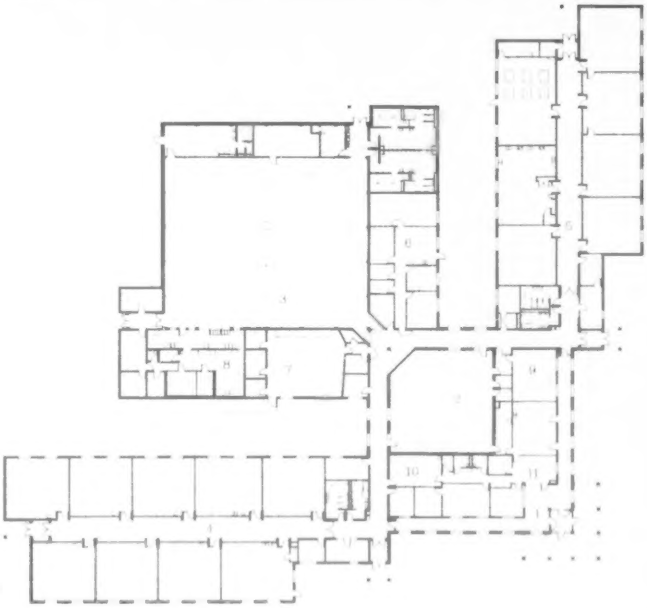
Completion date
July 1995

The St. John community and school board desired to replace their existing, overcrowded, aging K-12 school with a new facility that would provide their children the educational opportunities of the 21st century. They wanted a facility capable of accessing the high-tech resources of the present and future—as well as paying respect to the cultural past and present of the surrounding Turtle Mountain Band of Chippewa people and land. With these objectives in mind, Smith Geston Duffy was hired from a field of architectural firms to design their school.

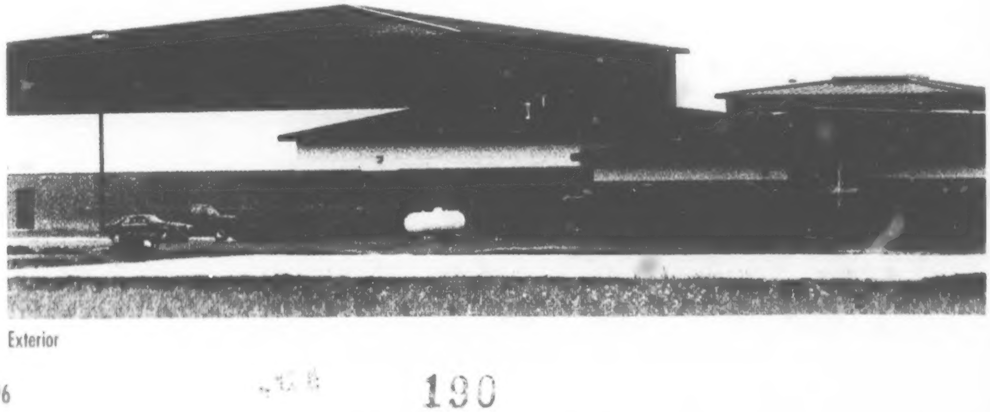
The design concept chosen was inspired by the Thunderbird, the Native American mythological figure of lightning, thunder, and power. The building plan takes on the form of a bird with the administration area located in the "head"; the media, gymnasium, and gathering areas in the "body"; and the classrooms located in the "wings." The entire structure is then linked to the sky and world with the latest in computer-satellite technology.

Building construction material emphasize masonry

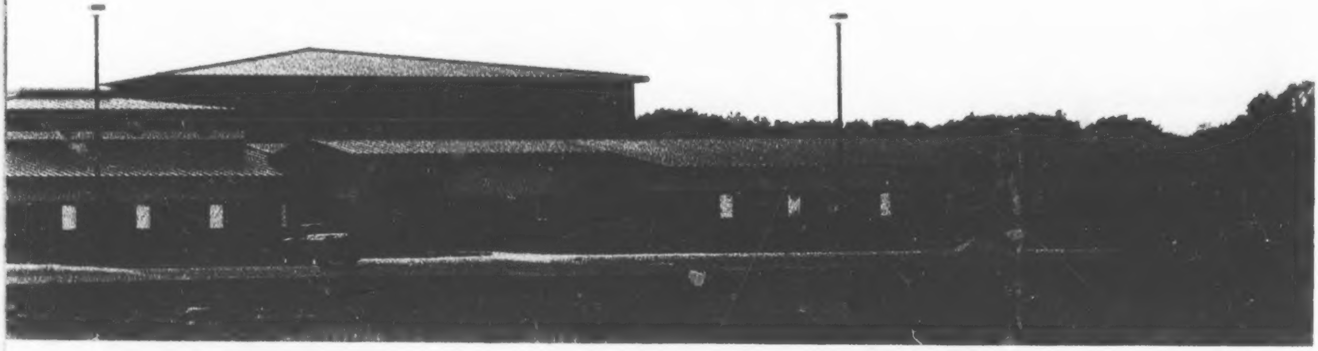
Overview



Floor plan



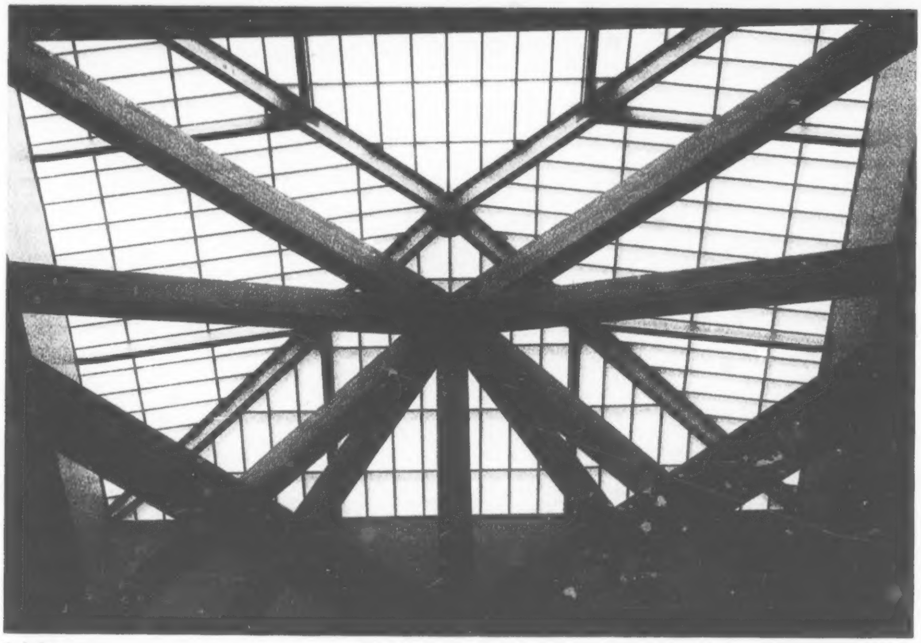
Exterior



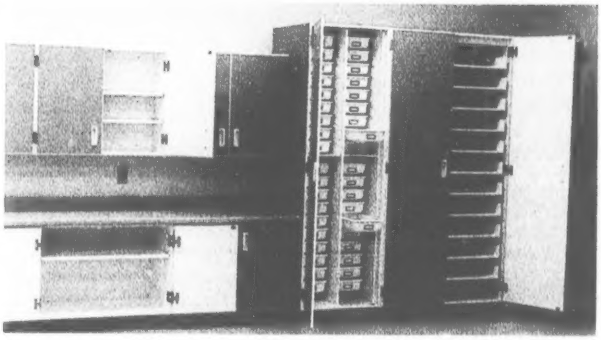
(earth) on the exterior and exposed wood (life forms) on the interior. Exterior colors are from Native Culture "Four Directions," with interior colors as the connection between earth, water, sky (light), and life.

A strict construction budget was required and met, as well as requirements for future expansion spatially and technically.

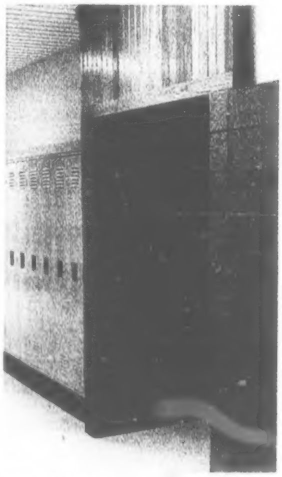
All the school board's initial desires of bringing the knowledge of the past in touch with learning networks of the present began when school opened in September 1995. ■



Skylight



Storage units



Doorway detail

K-12
New Construction

MEHLVILLE SCHOOL DISTRICT MULTI-PROJECT
ST. LOUIS, MISSOURI
Sverdrup Facilities Inc.

Sverdrup Facilities Inc.
801 N. 1st Street
St. Louis, MO 63101

Pat Spector
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Program Executive

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Program Manager

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Lead Architect

Al Newsome, PE
Mechanical Engineer

Dave Phipps, PE
Structural Engineer

John Reagan, PE
Electrical Engineer

Dwight Wyatt, AIA
Architect

Client
Mehlville School District
(314) 892-5000

Grade span
Pre-K through 12

District-wide capacity
12,200

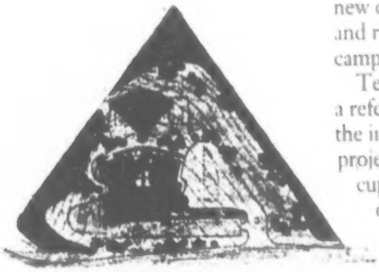
Current building area
786,000 square feet (renovated)
240,000 square feet (new)

Total project costs
$29.4 million

Space per student
84 square feet (average)

Cost per student
$10,200

Completion date
January 1995


Hagemann Elementary School site plan

Exterior, Hagemann Elementary School

Interior, Oakville Senior High School

Missouri's Mehlville School District faced abundant problems that were negatively affecting the quality of education. Schools were overcrowded, buildings weren't up to current ADA standards, and there were safety risks for students and staff.

The district needed structures that were efficient and accessible while providing an inviting learning environment for 12,200 pupils. After conducting a comprehensive evaluation of the district's educational program and a condition survey that identified facility deficiencies, Sverdrup created a master plan for more than $150 million in improvements. A comprehensive implementation strategy—which included a phased approach to new construction, additions, and renovations at 15 school campuses, was developed.

Ten months after passage of a referendum to raise funds for the improvements, the first project was completed and occupied by the opening day of school. The Phase I and II programs approved by the community included renovation work, additions, or new school construction at:

Mehlville Senior High
Oakville Junior High
Washington Junior High
Bernard Elementary
Blades Elementary
Hagemann Elementary
Rogers Elementary
Wohlwend Elementary
Oakville Senior High
Buerkle Junior High
Beasley Elementary
Bierbaum Elementary
Forder Elementary
Point Elementary
Trautwein Elementary

The $29.4-million program was completed within budget in less than two years from the date of the bond referendum's approval.

Exterior, Forder Elementary School

Hagemann Elementary was constructed and occupied within eight months. Built on a 90° cross slope,the two-story plan takes maximum advantages of site conditions. The bow-string design of the roof hides the mechanical system, to avoid visual clutter.

Large, unused spaces in between buildings at certain schools, such as Oakville High School, were transformed into indoor commons areas to relieve cafeteria overflow and allow students to congregate and socialize. A former alley at this school is now a commons area large enough for day and night meetings, social gatherings, concerts, and other student activities. Cafeteria layouts in four schools were redesigned to reduce serving time and accommodate space for the possible addition of cook/chill kitchens.

Throughout the district's facilities, special attention was paid to scaling items such as windows, coat racks, and countertops to the children's size and development level.

New buildings and portions of structures renovated or added are air-conditioned for year-round comfort. The new and remodeled schools include provisions for voice, video, and data throughout the facilities. ■

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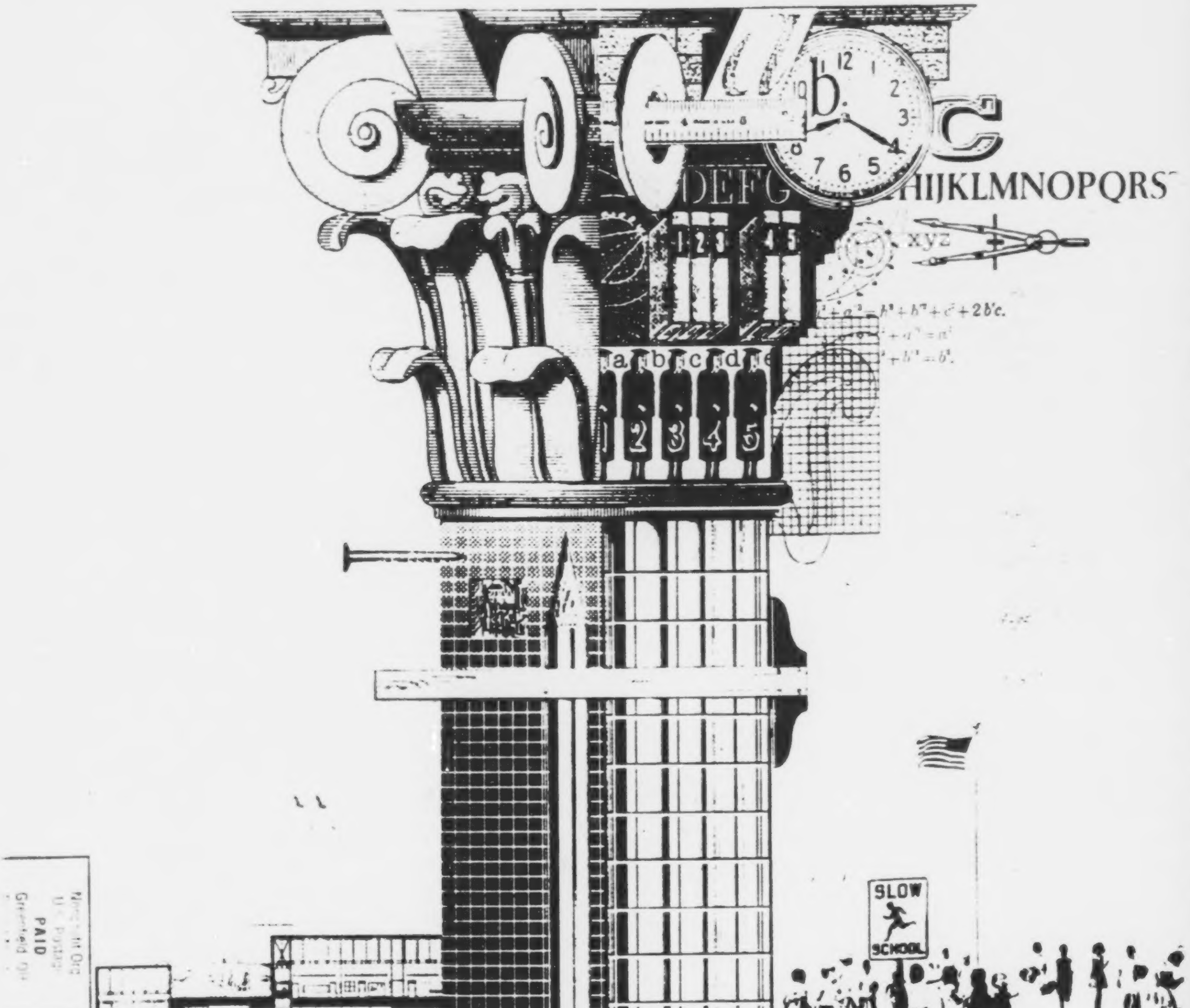
LEARNING BY DESIGN

A School Leader's Guide to Architectural Services ■ March 1997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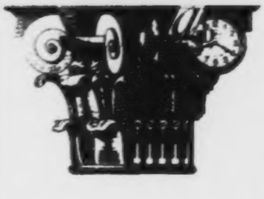
LEARNING BY DESIGN

A SCHOOL LEADER'S GUIDE TO ARCHITECTURAL SERVICES MARCH 1997



Introduction

A PLACE FOR EVERYONE

Where are we going to put all of these kids?

That's the question being asked as school districts across the country face the largest enrollment in U.S. history: The U.S. Department of Education reports approximately 51.7 million students in public and private schools this year and nearly 3 million more expected over the next decade.

Finding extra space isn't the only challenge: Schools are also being expanded or built anew to meet the needs generated by new technologies, changing styles of teaching, and community expectations that schools will serve as centers for educational, health, and social services.

The architects featured in this year's edition of *Learning By Design* certainly understand the problems faced by overstretched school districts. On the following pages, you'll see more than 100 entries, representing the best in educational design, that were submitted to our panel of distinguished architects and facilities planners. Architectural firms paid entry fees and provided project descriptions and contact information.

The judges selected the new **Agassiz Elementary School** in Cambridge, Mass., as the 1997 Grand Prize winner. Designed by HMFH Architects, Inc., in Cambridge, this facility is described in detail on page 8.

Eight Citation Winners were also singled out for praise:

- **Derby and Berkshire Middle Schools,** Birmingham, Mich. TMP Associates, Inc., *page 88.*
- **Harry S. Truman Middle School,** Fontana, Calif. tBP/Architecture, *page 108.*
- **Trailwoods Environmental Science Magnet School,** Kansas City, Mo. Mackey Mitchell Zahner Associates, *page 73.*
- **Valley Crossing Community School,** Woodbury, Minn. Armstrong, Torseth, Skold & Rydeen, Inc., *page 76.*
- **West Anchorage High School Science Center,** Anchorage, Alaska. Bezek • Durst • Seiser, *page 139.*
- **William W. Perry Elementary School,** Waynesboro, Va. Bond Comet Westmoreland + Hiner Architects, *page 60.*
- **Winter Springs High School,** Winter Springs, Fla. SCHENKELSHULTZ, *page 140.*
- **Woodbrook Elementary School,** Carmel, Ind. Fanning/Howey Associates, Inc., *page 78.*

If you want to discuss the construction needs in your own district, feel free to contact the architects who created the designs on these pages. (Their addresses and phone numbers are listed with their projects.) They can help you figure out where to put the kids—and maybe even where to find a little wiggle room for the future. ■

Anne L Bryant Don E Blom

Anne L. Bryant
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Don E. Blom
Publisher

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From the Reviewers

TRENDS IN SCHOOL DESIGN

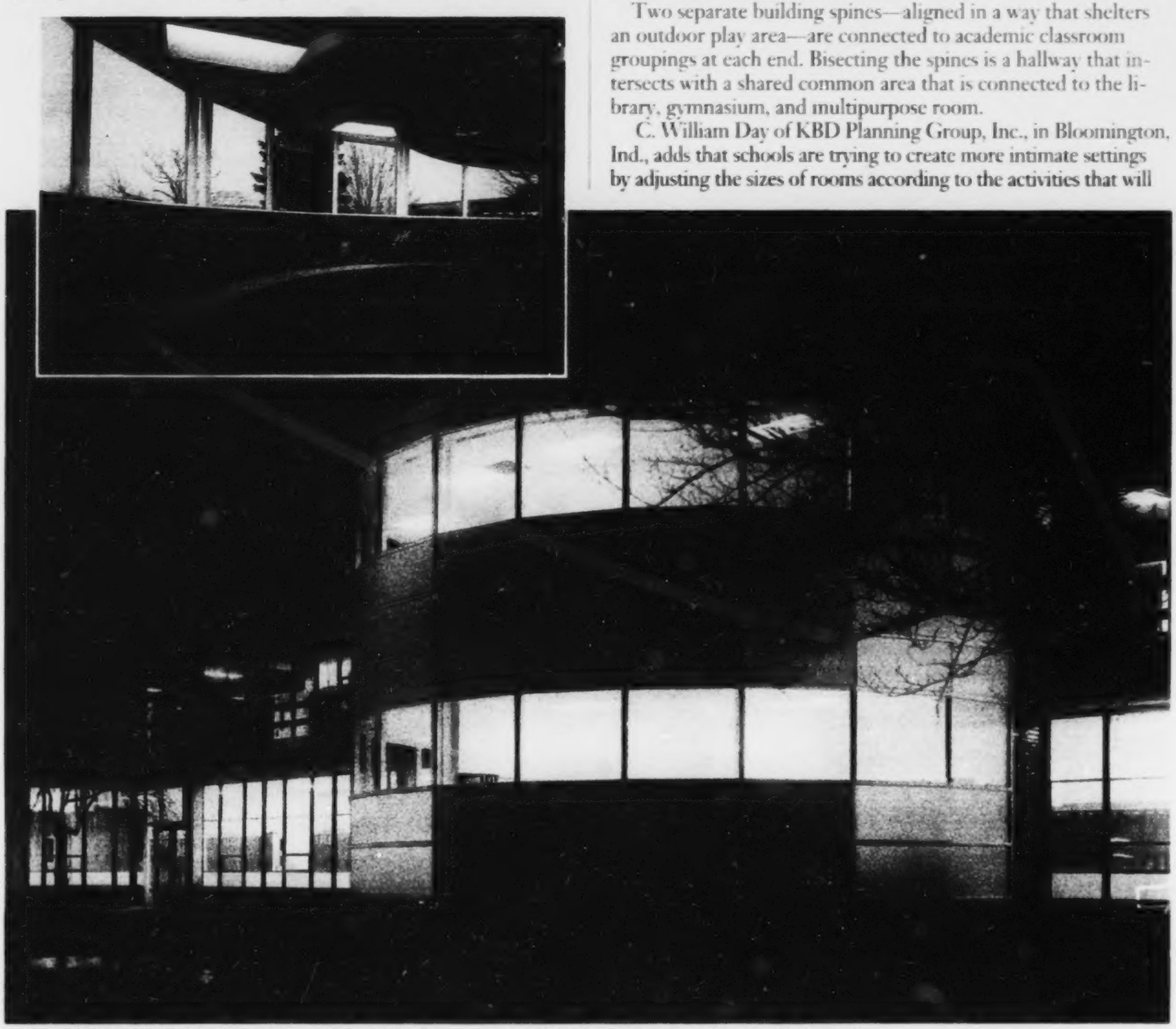
Smaller is better. More and more, that appears to be a guiding principle in the design of school buildings, especially for middle schools and high schools. But the "smaller is better" design principle is not as simple as it sounds. The reviewers who examined entries in this year's Learning By Design program say the buildings themselves are not necessarily smaller. Rather, the way such schools are designed allows school officials to divide students into smaller groups, or schools-within-schools, which foster a "small school" atmosphere. The different groups are sometimes referred to as houses, academies, or clusters.

"Big schools aren't necessarily the best anymore," says Craig W. Sharp of Motley & Associates, an architectural planning group in Roanoke, Va. "The trend is to break schools into smaller groups even if those groups are on the same site."

An excellent example of this design principle is Harry S. Truman Middle School in Fontana, Calif. This new, 83,276-square-foot school is designed to accommodate 1,000 students. The school, however, is divided by design into two identical 500-student schools-within-a-school.

Two separate building spines—aligned in a way that shelters an outdoor play area—are connected to academic classroom groupings at each end. Bisecting the spines is a hallway that intersects with a shared common area that is connected to the library, gymnasium, and multipurpose room.

C. William Day of KBD Planning Group, Inc., in Bloomington, Ind., adds that schools are trying to create more intimate settings by adjusting the sizes of rooms according to the activities that will



PHOTOS COURTESY OF TMP ASSOCIATES, INC.

Derby and Berkshire Middle Schools, Birmingham, Mich.—Technology was integrated imaginatively into the architecture of both schools.

HARRY S. TRUMAN MIDDLE SCHOOL
ADMINISTRATION

PHOTO COURTESY OF HMC ARCHITECTURE

With its two schools-within-a-school, the Harry S. Truman Middle School in Fontana, Calif., exemplifies the trend toward dividing a large student body into smaller groups.

take place in the rooms. In other words, he says, the days of blocks of classrooms of exactly the same size are ending.

"Instead of bells and cells, we're seeing more of a demand for different size spaces to accommodate different activities," says Day. "It's more flexible." And the use of chairs and small tables, rather than traditional school desks, adds to this greater flexibility.

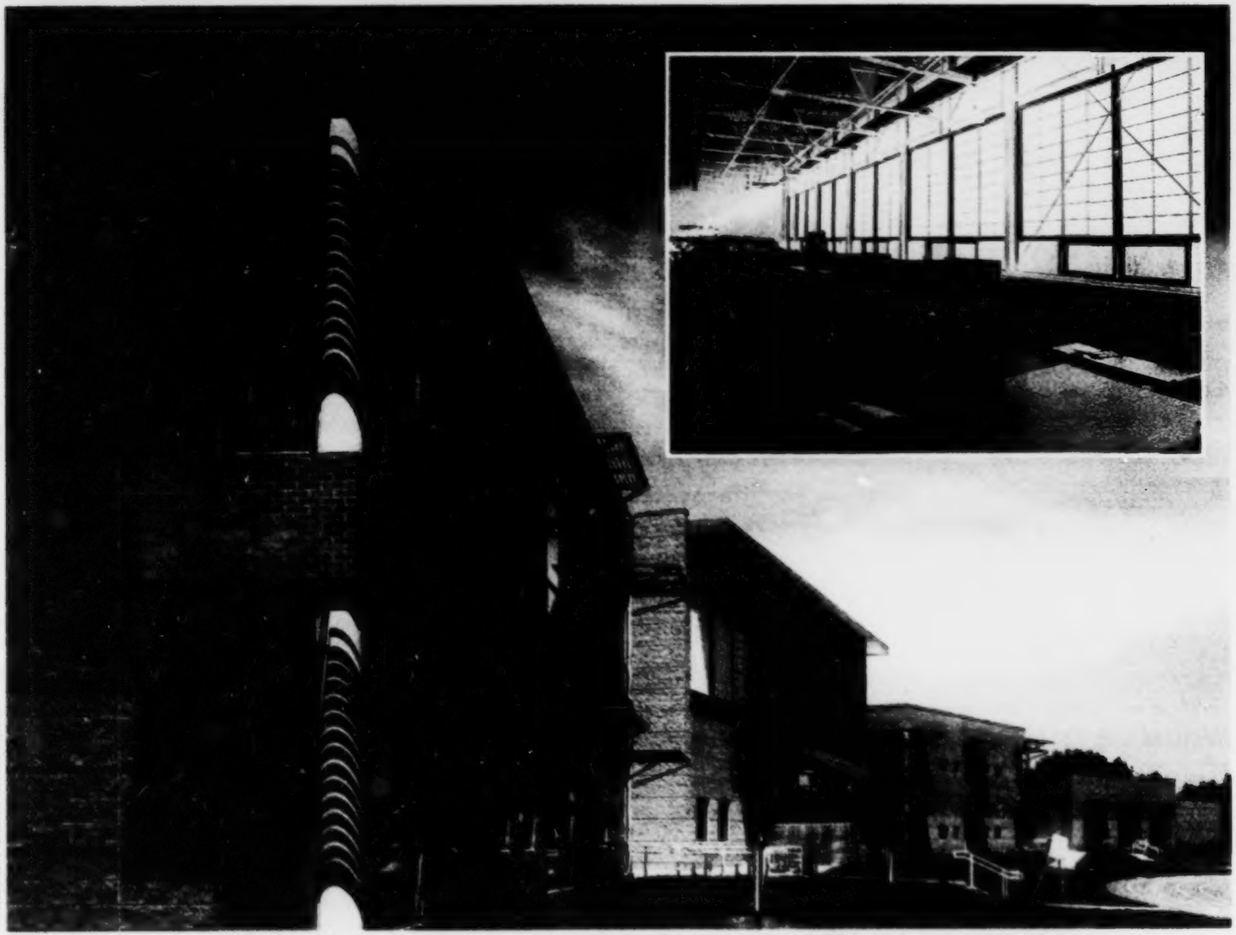
Community input

It used to be that the primary planners for the design of school buildings were board members, school administrators, and architects. Now, Day says, the planning of new school buildings also involves parents and even members of the community who do not have school-age children. School buildings, he says, "cannot be planned in isolation" any longer. "The community's saying, 'What's in it for me?'"

What's in it for many communities are special facilities such as fitness centers, which are being incorporated into the design of many new schools. Such facilities may drive up construction costs, Day says, but residents feel they are getting something for their tax dollars when community-use facilities are built into schools.

School libraries are another part of this trend of building community-friendly schools. Libraries in new schools tend to be bigger than traditional school libraries, say Day and his fellow reviewers, because they are often being used cooperatively with the local public libraries. And in some cases, the school library also serves as the local public library.

Expanded use of school buildings is having another consequence as well: School designers and builders are having to pay closer attention to heating, ventilation, and air conditioning systems, which must now meet increased demands for nighttime, weekend, and summer use.



PHOTOS COURTESY OF MACKEY MITCHELL ZAHNER ASSOCIATES

Trailwoods Environmental Science Magnet School in Kansas City, Mo.—The school's environmentally appropriate design highlights its environmental curriculum.

"Communities are slowly learning that you get what you pay for," says Robert Moje of VMDO Architects, P.C., in Charlottesville, Va. "They're realizing there's value in spending a little more."

The new auditorium

This emphasis on the community's needs, architects say, has led to a rebirth of interest in the design of auditoriums, which had declined in popularity until recently. "Without any question, auditoriums are back," says Day.

The new auditoriums are not necessarily bigger, the judges say, but they're more functional. For instance, today's auditoriums are wired with better technology that allows students and community groups to tape and analyze student performances or community events. "What's important about auditoriums now is the use of computers," says Sharp. "[Computers are] expanding into the arts and can be used for drama, stage settings, and lots of other things."

Of course, the integration of technology into school buildings is nothing new. But the reviewers say schools are doing a better job designing buildings that place technology into classrooms, libraries, and offices in more natural and imaginative ways—for example, in computer pods or carrels in libraries.

This greater emphasis on technology, however, is adding to the cost of buildings because it is creating a demand for more square footage per student.

Other trends are also beginning to emerge. They include:

- More emphasis on creating space that can be used by preschool and/or adult education programs.
- Better designed restrooms that help cut down on discipline problems. Instead of doors, some new restrooms have barriers that prevent people in hallways from seeing inside. In some, sinks for washing hands are located outside the restroom in the hallway, where students can be more closely monitored.
- In larger school buildings, administrative and guidance offices are decentralized so they are spread throughout the building. However, the principal's office is still usually near the main entrance of the building. ■

The review panel for this year's program included ***C. William Day****, senior analyst, KBD Planning Group, Inc., Bloomington, Ind.;* ***Robert Moje, AIA****, VMDO Architects, Charlottesville, Va.; and* ***Craig W. Sharp, AIA****, Motley & Associates, Roanoke, Va.*

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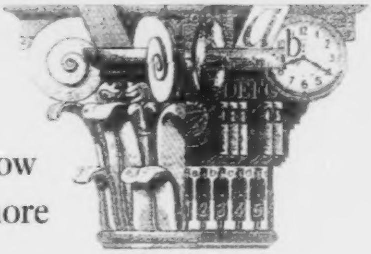

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GRAND PRIZE WINNER PROFILE

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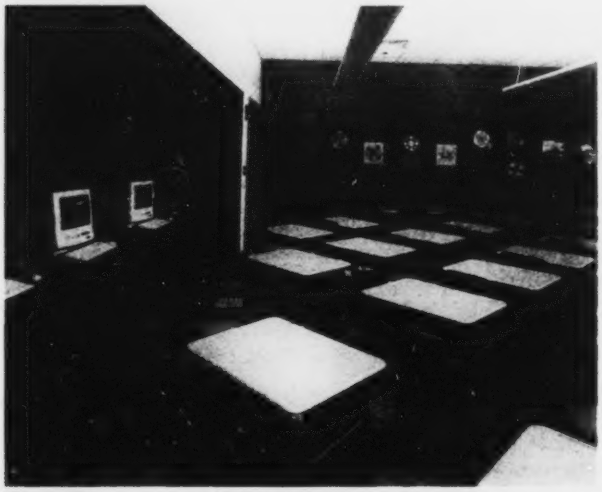
Agassiz Elementary School— a good neighbor with a history

The first black principal in the U.S., Maria Baldwin, oversaw the rebuilding of Agassiz Grammar School in Cambridge, Mass., 88 years ago. Poet ee cummings attended the first school on that site. So when George Metzger of HMFH Architects, Inc., was charged with redesigning a third Agassiz elementary school—named for 19th-century scientist Louis Agassiz—he faced a daunting task: create a school equipped with the latest technology while preserving the historic essence of its predecessors.

The result: a five-story school three times larger than the original school, with computers in every classroom wired to a network, and with an exterior design that took cues from both the old school and the residential neighborhood around it. "It looks like a fun place to go," says C. William Day of KBD Planning Group, Inc., Bloomington, Ind., and *Learning By Design* reviewer. "It doesn't look like a stereotype elementary school. It looks like a residence or a department store."

The old building had 13 classrooms; the library was a converted boiler room. When the long-range planning committee of the Cambridge City Schools found that Agassiz didn't meet the needs of the district, it decided to build a new school rather than renovate the old one. After looking at several different potential sites for the new school, the committee chose to build the K-8 school on the old site, in a densely populated residential neighborhood.



Classroom

Library with elements from original school

The site was small, and the new school needed to be larger than the old one, so the building had to grow up rather than out. The new school has five stories: the first story is underground and the fifth story, the library, is stepped back from the perimeter of the building so that it's barely visible from the street.

"We had lots of discussion about style," says Metzger. "We wanted it to be like [neighborhood] residences without mimicking the other buildings. And we took design metaphors from the existing building."

The school system sought permission from a local historic preservation group to raze the old building. The group carefully watched the construction of the new building, protecting the site's historic integrity. "We even had to go through a public process to remove two trees," says Metzger. HMFH agreed to design the cornice line to be the same height as the old building. The new Agassiz would also have the same setback as the old building.

Inside, echoes of the historic building are preserved. The limestone frames and wood doors of the old school are used for the doors of the cafeteria and gymnasium, and the library uses the original wood paneling and beams and a leaded-glass doorway from the old school.

Because the school occupies all the available space on the site, there is no room to add on later, so the architects needed to design for flexibility. One indication of that flexibility is in the

Main entrance

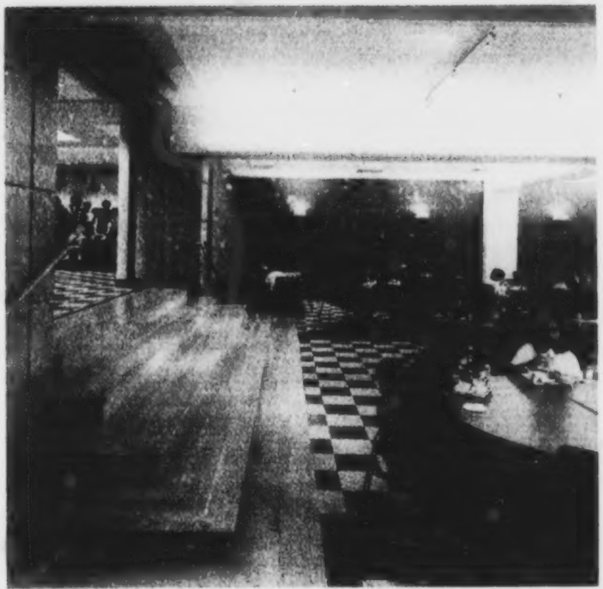
new school's technology infrastructure. Not only is each classroom wired and equipped with five computers, but every room is wired for computers—even the gymnasium and the cafeteria.

"This will [continue to be] a good school in 50 or 100 years," says Robert W. Moje, AIA, principal with VMDO Architects, P.C., Charlottesville, Va., and a *Learning By Design* reviewer.

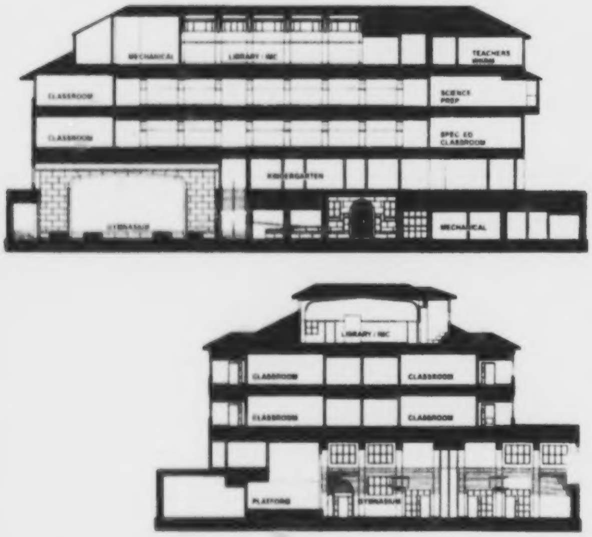
The gymnasium, cafeteria, music room, and other common spaces are on the lower level. First-grade through fifth-grade classrooms are on second and third levels. The middle school, which includes sixth through eighth grades, is housed on the fourth level. The library is on the top floor. The bay windows that give the school its residential feel also give the science and art rooms in the middle school lots of natural light; in the lower grades, the bays are used as common areas for pairs of classrooms.

Another consideration in the design is that the community uses Agassiz almost as much as the teachers and students. This is why the common spaces and some classrooms are on the lower level, where they are easily accessible for night activities and classes. The *Learning By Design* reviewers especially liked the kiosk on the school's sidewalk, which is used for announcements and other information about Agassiz. The kiosk draws the community into the school and gives it the feel of a shopping mall, or as Metzger suggests, a Paris street corner.

"The school will be a welcome permanent resident of the neighborhood," says Craig W. Sharp, AIA, principal with Motley Associates, Roanoke, Va., and a *Learning By Design* reviewer. ■



Cafeteria and music classroom



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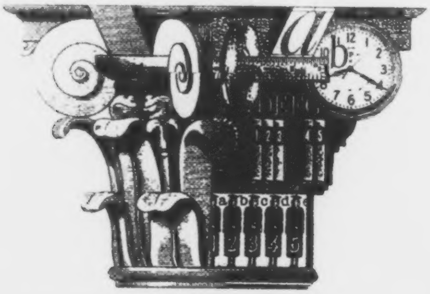

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FIXING AMERICA'S SCHOOLS

By Raj Barr-Kumar, FAIA, RIBA

The place to start fixing American education is with the school buildings themselves

America's public schools are in crisis, but the nation is confronting that crisis by talking it to death. While we've been talking, decades of short-sighted neglect of our academic dwellings have presented us with another urgent crisis in education: the crumbling physical condition of schools throughout the country at a time of rapidly rising enrollments and often severe overcrowding.

Crumbling schools present a real crisis. Not only are many of them, in the words of one critic, "profoundly unhappy places," but—certainly no less than roads and bridges—they are part of the deteriorating economic infrastructure on which our competitiveness as a nation depends.

This is not just an inner-city problem. It is true that New York City now lacks classroom space for 90,000 public school students—equivalent to the total enrollment in District of Columbia public schools. But suburban Broward County, Fla., outside Miami, relies on more than 2,100 portable classrooms. And Broward County is by no means alone: The General Accounting Office states bluntly that U.S. public schools need $112 billion in new construction and renovation right now. We spend only about 10 percent of that sum each year.

Of the nation's 110,000 school buildings, one in eight is classified by architects as needing "immediate" structural attention. More than one-third evidence serious deterioration and maintenance problems. Nearly half lack electrical wiring adequate to support needed computer and multimedia technologies, even if their budget could afford them.

That is, of course, the main problem. As virtually every school leader can testify, there is no money. Throughout the country, bond issues to fund the building or renovation of schools fail more often than they pass, reflecting the fact that the local tax base supporting our schools is strained to the limit.

President Clinton has proposed a four-year, $5 billion dollar federal program to subsidize borrowing by local school boards for construction. This is a small, yet commendable, start.

The American Institute of Architects (AIA) strongly supports the president's initiative to renovate and modernize school facilities. During the 105th Congress, the AIA is making passage of the National School Infrastructure Act one of the cornerstones of its legislative agenda. In this era of budget constraints, the AIA supports the concept of cooperative federal/state funding methods that emphasize federal support rather than federal control over school districts requesting assistance.

Americans today can do more than set new goals for education. We can build those goals into the design, structure, and function of our schools. We can begin by thinking of schools not just as single-purpose buildings, but as environments, each of which should reflect the specific needs, interests, and aspirations of the community it serves.

Horizonte School, Salt Lake City, Utah—office building turned high school

In Salt Lake City, for example, a mothballed office building has been retrofitted as an alternative high school that offers adult education, job counseling, and classes in English as a second language. This cost-effective solution, developed by architects and school administrators, saved the school district nearly $3 million. The school now serves a community of 1,200 high school students and an additional 3,800 distance-learning students. Working together, school leaders and architects can find many other innovative ways to stretch limited budgets to improve the learning environment for kids.

Nowhere is it written that schools should not include day-care centers or medical and dental services. Nowhere is it written that school athletic facilities, fitness centers, libraries, media complexes, theaters, and conference rooms should not be available to the entire community. Many school districts have a lot to offer local citizens in exchange for funding construction projects.

Fixing America's schools is likely to be a two-year public works effort, at least. But if it is to be a successful effort, it will require federal support to help strengthen fragile state and local funding.

It is time we recognized that we pay as much for inferior schools as we would pay to have the best ones. We pay directly, in the far higher operating costs of crumbling and obsolete facilities and in lost teacher productivity. We pay indirectly in the massive economic and social costs of poorly educated young people who lack the skills to be productive.

America deserves better. We cannot afford to miss an opportunity to redesign the purpose and functions of our schools to meet the changing needs of our communities and the changing demands of a global economy. To make dramatic changes in the way our schools work, we must start with the buildings themselves. ■

__Raj Barr-Kumar__, FAIA, RIBA, is president of the American Institute of Architects. He is principal of Barr-Kumar Architects Engineers and a partner in Kress Cox Barr-Kumar Architects, Washington, D.C.

PLANNING FOR QUALITY

By W. Sam Adams, James B. Henderson, and James M. Chitwood

How one school district used 'continuous quality improvement' to plan a new K-8 school

It's a familiar story: Population expansion puts pressure on school facilities, and the school district must scramble for resources. That was the case in Oshkosh, Wis. Enrollment had increased from 8,333 in the 1987-88 school year to 10,426 in 1996-97—and to an expected 10,885 by 1998-99. For 20 years, the district had been using its operating budgets to support school expansion, while falling behind in building maintenance, technology acquisition, and the funding of instructional initiatives. To complicate the picture, the city's population expanded to the west, where there were few schools.

Clearly, the district needed to build, but raising the revenue wouldn't be easy: In 1994, the Wisconsin legislature passed a cost-control law to protect homeowners against excessive property taxes. The law placed limits on annual spending increases by school districts. When they could not meet their financial obligations, school districts were prevented from borrowing for major construction projects without a referendum.

There is no ideal time to schedule a vote for a school referendum. But in 1994, the Oshkosh school board and administration believed the social, economic, and political climate was right. The last successful referendum had been passed in 1972; 20 years later, the school board voted to pursue a referendum for November 1995.

Involving the community

As a first step, the board assembled a community-wide task force to design a new K-8 school. The group's charge:

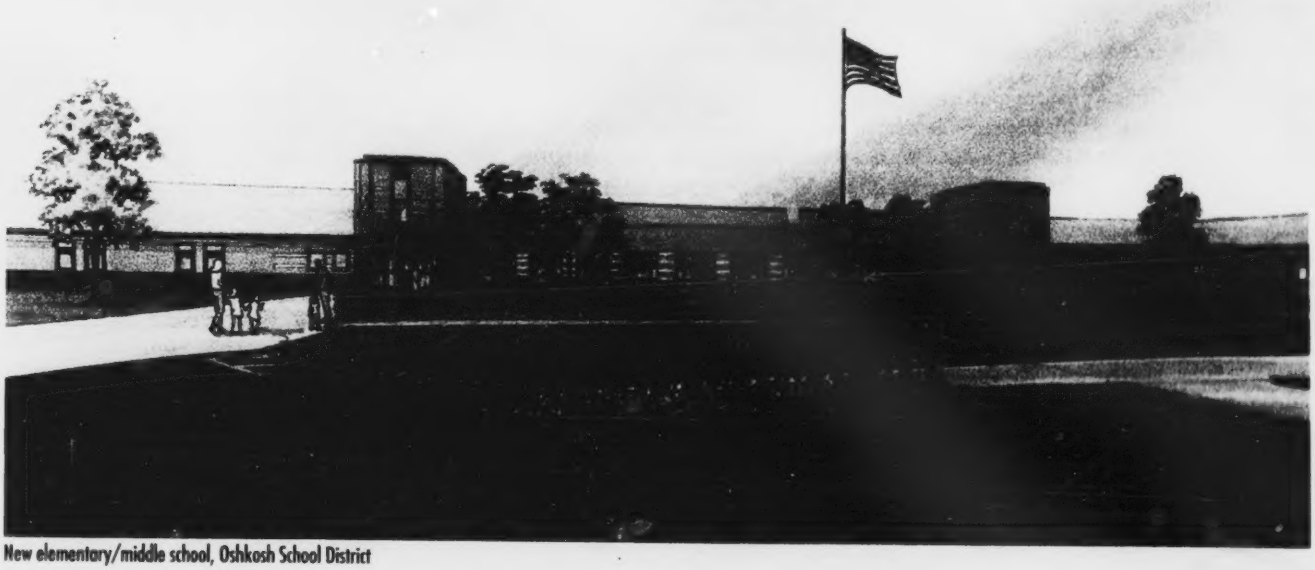
1. Identify changes in curriculum and instruction that affect the design of the building and its equipment and staffing.
2. Define a facility that permits after-hour community use.
3. Maintain regular and frequent communication with the school board.
4. Emphasize safety inside the building and on the playgrounds and parking lots.

Half of the 10 members of the task force were board members and community representatives; the other half included principals, teachers, staff members, and the superintendent.

A team trainer from the University of Wisconsin, Oshkosh was asked to serve as facilitator of the task force and to introduce the concepts of Continuous Quality Improvement (CQI), sometimes known as Total Quality Management. The focus, the trainer said, would be on using a systematic, data-driven approach to solving problems.

The facilitator shaped the work of the task force around the 14 principles of continuous quality improvement set forth in *Out of the Crisis*, the 1986 book by management guru W. Edwards Deming. Here's how the 14 principles were applied to school planning:

1. Create constancy of purpose for improvement of product and service, with the aim to become competitive and to stay in business. Applying this business principle to the education arena, the task force focused on the need to build a new school that would be comparable to recently constructed schools in the state. The group obtained data from the Wisconsin



New elementary/middle school, Oshkosh School District

The school board wanted the group to think broadly about what a K-8 school should look like for the year 2010 and beyond.

Department of Public Instruction to make sure the new school would exceed state requirements. Members also visited K-8 schools elsewhere in Wisconsin to observe what was feasible and desirable in school architecture.

Administrators developed demographic data for the next 10 to 15 years for use in projecting future pupil enrollment needs. Later, using recommended site sizes from architects and state planners, the task force determined whether land purchased by the school board 20 years ago was adequate for a K-8 school building that would house 1,150 students. We concluded that a larger site was essential. The Council of Educational Facilities Planners International recommends no less than 43 acres for a combined elementary and middle school of that size.

2. Adopt the new philosophy . . . and take on leadership for change. The school board and administration had both received CQI team training, and both were committed to the CQI philosophy. They recognized the importance of developing trust among all employees, sharing ideas openly, empowering people in their areas of responsibility, focusing on process improvement, and using data in problem solving.

At the onset, the task force developed a "code of conduct" for running their meetings. This commonly agreed upon standard set the tone for all the deliberations, many of which involved conflict and strong legitimate disagreement among members. But following the CQI philosophy—and the code of conduct—led to trust and open communication.

3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product [process] in the first place. The school board made it clear from the onset that it did not have the time or the inclination to "inspect" the planning process. Instead, the board trusted the task force to methodically and scientifically examine all possible evidence to justify the K-8 school building. The school board and the district administration maintained this confidence throughout the process, trusting their representatives on the task force to serve as liaisons and resources.

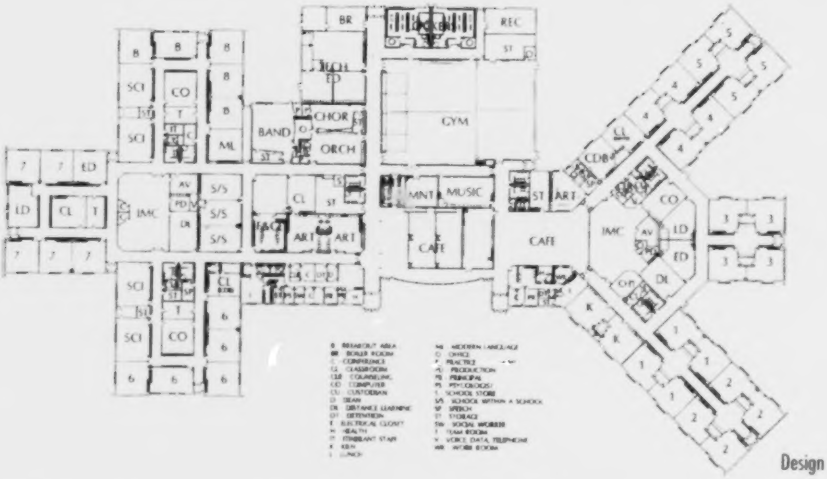
4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust. The task force was given no guidelines on total cost for the new school. Instead, the school board wanted the group to think broadly about what a K-8 school should look like for the year 2010 and beyond. The board then hired an outstanding architectural firm and employed a top-notch construction manager to ensure that the group's vision would be achieved in the new school building. As Deming wrote, "quality must be built in at the design stage." That is just what the task force did, getting input from architects, staff, and community for each decision along the way.

5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs. The task force used surveys and focus groups to determine how much space would be needed for various classrooms and support areas. Custodians, for example, determined the necessary storage space for maintenance equipment. The result of these frequent consultations and open public meetings was a high-quality, instruction-driven design that fit the space available on the site.

6. Training must be totally reconstructed. Management needs training to learn about the company, all the way from incoming material to customer. First school teams, then district administration teams, and most recently the school board itself were given CQI training. In addition, the task force received "just-in-time training" in specific areas as the need arose. This principle was key to meeting architectural design requirements, construction time lines, and specific objectives set by the school board.

7. Adopt and institute leadership. The job of management is not supervision, but leadership. Board members and administrators provided the leadership necessary to move the task force forward and then got out of the way. The board critiqued the task force seriously on only two issues: merging two schools (a K-5 elementary and a 6-8 middle school) into one building, and bringing the project cost in at a level the electorate could support. The task force would have preferred two separate schools but deferred to the board's judgment of what the community could accept. That decision placed the task force in a better position to take a positive leadership role in determining how to design a combined K-8 school.

8. Drive out fear, so that everyone may work effectively for the company. Once the code of conduct was adopted and the school board's best wishes made known, the idea of fear never entered into the process. The aim was success; no one worried about failure. Every team member felt free to contribute openly and honestly. School staff and citizen members were equal participants. The facilitator made deliberate efforts to see that everyone



Design development floor plan

had an opportunity to contribute, and he encouraged those less likely to participate to share their ideas on a regular basis.

9. Break down barriers between staff areas. The task force reached "team status" relatively early in the CQI process. The team was designed as a cross-functional entity, which reduced the likelihood that constituent groups would complain about not being involved. In fact, all levels of the district were represented—school board, administration, principals, teachers, parents, community representatives, and even students, on a limited basis. Many public meetings were held, including two communitywide forums at which the public was invited to interact with the task force as part of the referendum campaign.

10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Slogans, exhortations, and targets frustrate employees because company goals are often unrealistic. Pressure to perform leads to errors, and costs increase with rework. As a result, the quality of work decreases, and management is not respected.

The task force itself did not address this principle, but the school board complied with it by not limiting the task force to specific criteria for total square feet, total cost estimates, or other parameters, which would have limited the discussion. It was only after the task force held several brainstorming sessions that the board provided an approximate new school size and location.

11. Eliminate work standards (quotas) on the factory floor. Substitute leadership. . . . Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership. No external criteria were imposed on the task force in the planning phase. The only concrete expectations were to meet construction deadlines "recommended" by the architects to meet a target opening date of fall 1997.

12. Remove barriers that rob hourly workers of their right to pride of workmanship. . . . Remove barriers that rob people in management and in engineering of their right to pride of workmanship. The task force took on a pride of ownership in the ideas generated about the new school, and that pride was shared across all levels of the school district and community. The task force was, in fact, a representative body of the community, so the pride rightly belonged to the entire community. And that pride showed: *The Oshkosh Northwestern* published several editorials supporting the new school, and a high percentage of the letters to the editor were also supportive.

13. Institute a vigorous program of education and self-improvement. At the onset, the task force asked to be educated not only in CQI but also about instructional philosophy and school design. A consultant from the University of Wisconsin, Eau Claire was brought in to discuss the middle school philosophy, and a principal from Hortonville, Wis., shared his knowledge about how to design a middle school using the house concept. Using this concept, the school was designed to house students by grade level in three different wings, reducing student groups to more manageable size and encouraging better interpersonal relationships, teaming, and collaborative learning opportunities.

14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job. Although the task force represented the Oshkosh community in designing a new K-8 school, it also saw itself as a group of people who must pass on the word that CQI is a better way of doing business. The group used CQI throughout the planning process. The school board, district administration, teachers, students, parents, and the general public saw how the CQI process worked and produced an outstanding product. Enthusiasm for CQI has become part of the district culture, and people feel good about the process, the product—that is, the new school—and themselves.

The results

In November 1995, Oshkosh voters passed a $25.9 million referendum, with 54 percent of the vote. The fact that the referendum passed the first time, we believe, was due in large part to the Continuous Quality Improvement process, which started with a design team, expanded to a community-wide referendum, and resulted in funding a high-quality school that will be shared by all children in the community.

The finished school will be 191,000 square feet in size, allowing 166 square feet per student. The building was designed so that elementary and middle school students would be separated for instruction but would share central "core" facilities, such as the gymnasium and cafeteria. This arrangement clearly supports the teaming and regrouping of students across grades and departments—and allows for after-hours use by the community that made this school a reality. ■

W. Sam Adams *is University of Wisconsin, Oshkosh Continuous Quality Improvement Coordinator and associate professor of educational foundations in the College of Education and Human Services.*

James Henderson *is superintendent of schools in Oshkosh, Wis.*

James M. Chitwood *is director of residence life at the University of Wisconsin, Oshkosh and a member of the Oshkosh school board.*

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BUILDING A HEALTHY ENVIRONMENT

By Elizabeth Simon

Whether you're building a new school or renovating an old one, you should heed these environmental concerns

Children in a Pecos, N.M., elementary school are sent to a hospital after 50 of them report dizziness, nausea, and rashes. A janitor and a teacher at a school in Tucson, Ariz., are treated by paramedics after complaining of dizziness and the smell of gas. Students in Wilmington, N.C., are overcome by paint fumes and sent home complaining of burning eyes and shortness of breath.

Stories like these—all reported in newspapers in recent months—spur fear and outrage among parents and concern among school personnel. If the safety of children in school buildings is in question, the nature and value of the learning experience is also at risk.

What causes such incidents? In all of the cases mentioned here, the cause was accidental exposure to a common substance—a cleaning product, overheated hydraulic fluid, paint fumes. The causes of some indoor environmental problems are less easily traced, however, and the problems can range in severity from the annoying to the deadly. The good news is that most such problems can be avoided by good planning, routine building maintenance, and some relatively simple precautions.

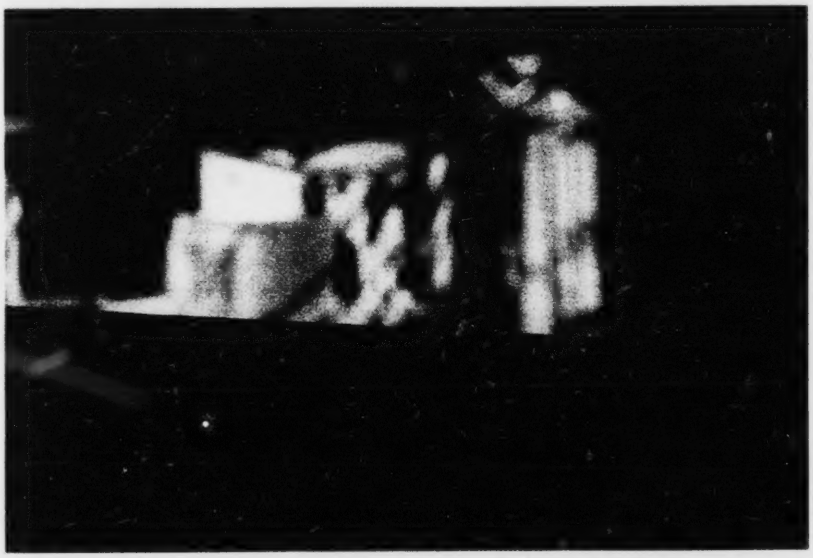
Breathing lessons

Poor indoor air quality (IAQ) is probably the most frequently cited environmental problem in schools, as well as in offices, homes, and commercial buildings. IAQ involves at least four factors—temperature, humidity, and the rate and velocity of ventilation. If any of the factors is incorrect, discomfort and poor air quality may be the result. Throw in an airborne contaminant such as mold or bacteria, and you may have "sick building syndrome" (SBS), a situation in which building occupants experience discomfort without obvious cause. SBS symptoms, such as headache, eye or throat irritation, and fatigue, usually disappear or lessen when the occupants leave the building.

A less frequently used term, "building related illness" (BRI), refers to symptoms of illnesses that can be identified and directly attributed to airborne contaminants inside a building. Common symptoms of BRI include coughing, chest tightness, fever, chills, and muscle aches. Deciding whether SBS or BRI is affecting the people in a building requires investigation and testing.

Inefficient or poorly maintained heating, ventilating, and air conditioning (HVAC) systems must often shoulder the blame for poor IAQ. Many older systems have simply outlived their usefulness; though efficient when installed, they have since become inadequate for space or population requirements. The oil crisis of the 1970s also placed a burden on existing HVAC systems that were not redesigned for better-insulated buildings. Sometimes proper ventilation took a back seat to saving fuel and money, as standards for the amount of outside air per building occupant were relaxed and vents in less frequently used rooms were obstructed to reduce the area to be heated or cooled. The result: less fresh air and a greater concentration of pollutants.

Charles Hall, business unit manager for K-12 schools for Landis & Staefa in Buffalo Grove, Ill., puts it succinctly: "Any alteration from the original building design will probably cause problems" for the HVAC system. Hall points to extended periods of operation as another stress placed on older units. Many school buildings must now accommodate split calendars, shifts, year-round schedules, and other nontraditional uses such as senior citizen activities, day care, and after-school care, in addition to regular classroom use. All of these force HVAC systems to run longer and harder, which calls for increased maintenance or updated systems.



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Problems may also result from poor original building design or construction. Dale Drysdale, a certified industrial hygienist and manager of corporate occupational health with the Houston engineering and construction firm of Brown & Root, Inc., notes the difficulties water can cause. If water seeps in and collects in ceiling tiles, carpets, or insulation, for example, bacteria and fungi can thrive.

HVAC systems can also harbor biological contaminants when water and dirt collect in ventilation ducts, air handlers, and drain pans. Drysdale says that he has seen "some stunning successes" in

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Wearing protective clothing, workers remove lead-based paint.

solving IAQ problems once HVAC system maintenance has been properly tended, the leaks fixed, and the systems cleaned up.

Hall agrees that "maintenance is the most important thing" in keeping HVAC systems healthy. A case in point, he says, is an elementary school that once had the highest rate of absenteeism in the state among teachers. The teachers' problems were traced to mold growth within the HVAC due to poor maintenance. The system was replaced, and now the school has one of the highest attendance rates among teachers. "You must maintain it or replace it," Hall says.

Chemical contaminants from indoor sources can also contribute to poor IAQ. Carpeting, upholstery, and wood products such as plywood and particle board contain formaldehyde, which can continue to be released over several years.

Joyce Burke Jones, FASID, an interior designer with the architectural firm of NBBJ Inc. in Cleveland and national president-elect of the American Society of Interior Designers, says all furniture and accessory materials will give off some gases. When contemplating a move to a new space, planners also should avoid what could be false economy, Jones says. For instance, she notes that often old furniture will be used rather than new to save money. But she cautions that furniture specifications should be checked for information about materials, toxicity, or flammability. "What would the upholstery contribute to the toxicity of smoke if there was a fire?" she asks. Jones suggests consulting an architect or on an interior designer to get full information on building materials and accessories.

Other sources of fumes and odors, such as copy machines, pesticides, cleaning agents, and adhesives, may cause discomfort to those who are particularly susceptible—especially when the substances are used in poorly ventilated areas. And chemical contaminants from outside the building, such as exhaust from school buses, can be brought inside if vehicles are allowed to park near air ducts.

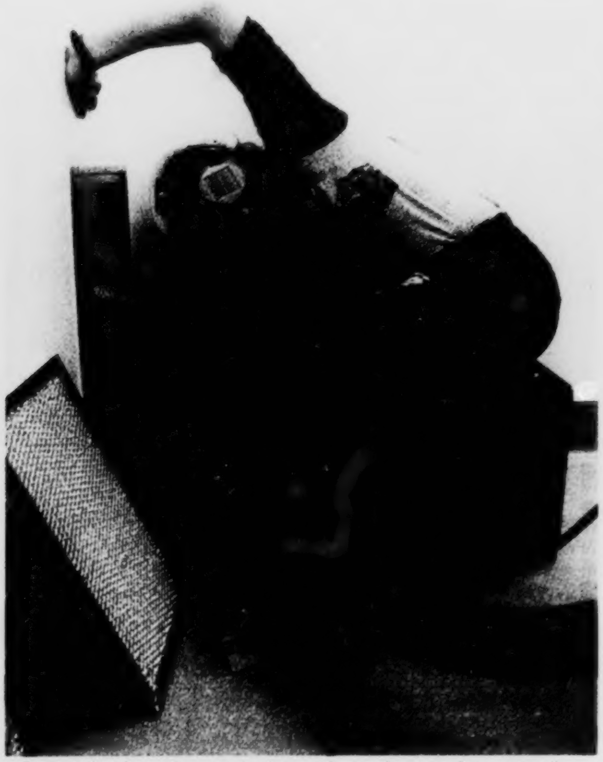
The U.S. Environmental Protection Agency (EPA) recommends the following combination of actions to eliminate or lessen poor IAQ:

- maintaining HVAC systems on a regular schedule
- replacing water-stained ceiling tile or carpet promptly
- storing and using chemical pollutants such as paints or adhesives in well-ventilated areas or during hours when there are few people in the building
- increasing air ventilation and distribution rates
- allowing time for building materials in new and remodeled areas to off-gas pollutants before occupancy.

Asbestos—warm, fuzzy, and problematic

School remodeling projects have a much greater potential for stirring up environmental hornet's nests than the building of new structures. Depending on the age of the school, one lurking problem may be asbestos, a fire-proofing and insulation material once commonly used in walls, floors, ceilings, and around pipes. Studies have shown that inhaling asbestos particles can lead to lung cancer or asbestosis, a chronic inflammation of the lung.

Some years ago, the accepted wisdom was that all asbestos should be removed from buildings. Experts now recognize that although airborne asbestos fibers are hazardous, asbestos is still an efficient, long-lasting material. As Delbert Gaines, an indus-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A sheet-metal worker replaces duct insulation with non-asbestos insulating material.

trial hygienist with Brown & Root, puts it, "If the asbestos-containing material is in good condition, and it can be properly managed, why take it out?" Whether the asbestos in a school undergoing renovation must be removed or managed in place will be determined by the state of the repair of the material. If it is still in good condition, it can be encapsuled with sealants or enclosed with sheetrock or similar materials.

The federal law governing asbestos management in schools is the Asbestos Hazard Emergency Response Act of 1986 (AHERA). Under AHERA, all private and public schools must be inspected for asbestos-containing material (ACM). If asbestos is present, management plans must be submitted to the state for approval; response actions must be implemented; maintenance programs must be established for friable (that is, crumbling) ACM; and a record-keeping system must be developed. Also, each school must be reinspected at least once every three years after an asbestos-management plan is in effect.

Who makes the call on removal? School officials should check the asbestos management plan that has been established for their buildings and consult with the asbestos program manager or a properly accredited professional to decide on a course of action. Removal of asbestos involves special ventilation and shielding of the area and labor-intensive work by certified professionals. Because it is such specialized and highly regulated work, Drysdale warns, "the cost of removal can exceed original construction costs." If done improperly the process of removal can actually increase people's exposure to asbestos, so hiring professionals for the job is mandatory.

For new construction, architects will specify nonasbestos materials for contractors, and in some cases will require contractors

HERE'S HELP

If you're planning a construction or renovation project for your school district and need help with environmental issues, you might want to consult one or more of the following resources.

EPA offers a *Tools for Schools Action Kit* on indoor air quality, which provides checklists, background information, sample memos and policies, a recommended IAQ management plan, an IAQ problem-solving wheel, and appendices that deal with such issues as mold and moisture control and hiring outside assistance. The kit is available from the EPA IAQ Clearinghouse (800-438-4318). EPA's World Wide Web page at http://www.epa.gov also contains much information on many school-related environmental issues.

An overview of IAQ information is available from the American Industrial Hygiene Association (AIHA) in its brochure *Do I Work in a Sick Building?* AIHA also publishes a brochure titled *An Ergonomics Approach to Avoiding Workplace Injury*. Both brochures can be ordered from AIHA at (703) 849-8888. The first five copies are free; a package of 50 brochures is $10. A free listing of industrial hygiene consultants, updated twice yearly, is also available.

The Sheet Metal and Air Conditioning Contractors National Association (SMACNA) also offers guidance. A document titled *Indoor Air Quality: Guidelines for Occupied Buildings Under Construction* can be ordered for $66 from the SMACNA publications office (703-803-2989).

The Environmental Health Center (EHC) of the National Safety Council (NSC) manages the National Lead Information Center (NLIC) under a cooperative agreement with EPA. NLIC runs a national toll-free hotline (800-LEAD-FYI) and clearinghouse (800-424-LEAD) on lead poisoning. The hotline distributes a basic information packet and a list of state and local contacts.

EHC and NSC also operate the national radon hotline (800-SOS-RADON) under a grant from EPA.

The EMF Infoline (800-363-2383) is managed by EPA, which also publishes *EMF in Your Environment: Magnetic Field Measurements of Everyday Electrical Devices*, a free booklet available from the EPA Information Center, 401 M Street SW, Washington, DC 20460. The National Institute of Environmental Health Sciences offers a free fact sheet, *Electric and Magnetic Fields and the Potential Hazard to Human Health*, which can be obtained by calling (919) 541-5085.

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With the help of a good architect, you can avoid most environmental hazards, whether you're building a new school or renovating an old one.

to produce samples of materials to certify they are nonasbestos.

Get the lead out

Another difficulty sometimes encountered during renovations is removal of lead-based paint. Although it is more commonly found in aging low-income housing, lead paint may be present in school buildings constructed as recently as 1980.

One of the most efficient means of abatement for some items that contain lead paint, such as door jambs or window ledges, may be simple replacement, says Gaines. But he cautions against using open flames and certain heat guns to melt the paint, because these approaches release the lead as a fume. Several compounds on the market will soften paint so that it can be peeled away. Using the wrong compound may allow the lead to leach into the underlying surface, however, or it might take several applications to get an acceptable level of lead removal.

Regulations from the Occupational Safety and Health Administration require that, if lead-based paint will be disturbed by a renovation contractor, the contractor must have a written compliance program to protect workers and building occupants from lead exposure. The compliance plan should be submitted before the start of the work.

Schools should also ensure that their drinking water does not contain lead in excess of EPA limits—15 parts per billion (ppb). "This is particularly important for school-age kids," says Drysdale, "because youngsters are more susceptible to the harmful effects of lead than are adults. Old pipes and plumbing can . . . be replaced during new construction and renovation."

Radon, the silent intruder

EPA ranks contamination from radon, a naturally occurring gas, as the second leading cause of lung cancer in the United States, with an estimated 14,000 lung cancer deaths per year attributed to radon exposure. If a school is located above a geological area containing radon, the gas may seep into the building from the surrounding soil. EPA reports that a nationwide survey of radon levels in schools estimated that nearly one in five had at least one classroom with short-term radon levels above 40 pico-curies per liter (pCi/L)—the level at which action should be taken to lower exposure.

The danger of radon is less from the gas itself than from its solid radioactive decay products, which may be retained in the lungs. Proper air circulation removes at least 50 percent of radon's airborne decay products. But radon gas is invisible, tasteless, and odorless, so buildings must be tested for its presence. EPA recommends that all schools be tested and estimates that only about 20 percent of schools nationwide have done some radon testing to date.

Being ergonomically correct

School officials who are planning renovation or new construction might also want to consider ergonomics, the applied science of arranging efficient interaction between people and things to make work safer and more comfortable. Long hours spent in front of computer terminals or in other sedentary work spaces can cause back and neck pain, eye strain, and general fatigue. Typing or other repetitive actions performed over a long period can lead to repetitive stress injuries.

Seating and workstations for students and staff alike can be designed ergonomically to alleviate many of these problems. Interior designer Joyce Burke Jones notes that today's office and classroom furniture comes with "so much information from the manufacturer" that comparisons can easily be made among different options. She also urges school administrators to call the manufacturers with questions.

Another group to take into consideration when designing new areas is maintenance personnel. Strains and sprains are common safety problems among employees who have to move heavy objects or perform maintenance in awkward positions or areas, such as at ceiling level, in crawl spaces, or even at floor level. Drysdale suggests involving maintenance workers and other building users during a building's design phase. "These people can provide important insights that architects and administrators normally don't have," he says.

Electric and magnetic fields

Should you worry about things you can't see? When the things in question are electric and magnetic fields (EMF), the jury is still out. Electric and magnetic fields occur around wiring, electrical appliances, power lines and generators, computers—in short, in and around almost any home, commercial building, or school. According to Dale Drysdale, epidemiologic research suggests that EMF may be a matter for concern. Some studies have suggested links between EMF and higher incidence of childhood cancer, especially leukemia, but evidence from other studies has been contradictory.

"The worst thing anyone can do," cautions Drysdale, "is to brush something aside and say it isn't a problem." Although EMF may or may not be a hazard, school administrators should be aware of the possible problem, ask questions, and involve others in the discussion—especially when deciding where to locate new buildings. "An administration that openly deals with uncertain issues is way ahead of the game," Drysdale notes.

The payoff

Environmental hazards are of growing concern in many sectors, from residential areas to schools to office buildings. Solving these problems in a school construction program requires basic knowledge, some persistence, and occasional recourse to specialists. But with the help of a good architect, you can avoid most environmental hazards, whether you're building a new school or renovating an old one. Informed planning will reduce the risk of an unhealthy environment. And that's a benefit to students, teachers, and school officials alike, because fewer environmental problems mean fewer sick days and greater productivity—plus money saved by thinking ahead rather than facing problems as they arise. ■

Elizabeth Simon *is a freelance writer in Fairfax, Va.*

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DESIGNING FOR THE FUTURE

By Daniel T. Cincoski, RCDD

When it comes to educational technology, the best advice is to plan for change

Talking about technology for school districts means discussing a moving target, a topic that changes according to what constitutes state-of-the-art for each district and each district's opinion of the importance of technology. One district might have all the latest and greatest in video, voice, and data systems, including staff development and ongoing upgrades, while another district is at the other end of the spectrum and still others fall somewhere in between.

Virtually all school districts have made some commitment to technology for administrative uses and for curriculum and instruction. The commitment varies from district to district, however, because of the costs of installation, the extent of the systems and equipment each district installs, and the district's ongoing staff development and upgrades. Many districts have committed funding for technology, but most have been able to take only the initial steps of readying the infrastructure and acquiring a limited version of the desired systems.

In many districts, for example, including technology has meant converting one classroom to a computer lab, adding power, rearranging the desks, wiring a print-sharing network, and possibly adding air-conditioning. Even today, if you walk into a school and ask, "Show me your technology," the typical response is usually a tour of the school's computer lab. But in actuality the whole school should be the computer lab.

In the past, teaching technology was a drill-and-practice routine as the student learned how to use a computer. Today, students are using technology as a tool for learning, which requires teachers to become facilitators and to be proficient in voice, data, and video technology. The old routine has given way to new teaching and learning methodologies, complete with a new vocabulary: networking, file servers, hubs and routers, multimedia, Internet access, media retrieval, distance learning, interactive video, virtual reality, satellite TV, cable TV, fiber optics, microwave, Category 5 data cable, CD ROMs.

In today's global society, the question is no longer, "Why do we need to teach kids technology?" Perhaps better questions are, "How much technology is needed? And how can a district be sure its schools are designed for technology?"

The power of technology

Designing for technology involves the school's physical structure as it relates to the educational philosophy of instruction and cur-

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Bard College NY
Barnegat Middle School NJ
Barrington Elementary TX
Barton Hills Elementary TX
Bayridge North Elementary Ontario
Becker Elementary School TX
Bedichek Middle School TX
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Brown Elementary School TX
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Carleton University Ontario
Casey County High School KY
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Casper College #2 WY
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Churchill Public School Ontario
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Daniel Boone High School TN
Daviess County High KY
Davis Elementary School TX
Dawson Elementary TX
Douglass School NJ
Eagleswood Elementary NJ
East Carter County High KY
Ecole Catholique Marie Curie Ontario
Ecole Pointe Le Chene Manitoba
Ecole Professionnelle du St Hyacinthe Quebec
Eisenhower Elementary NJ
Ely Community College NV
Ernest Cumberland Elementary Ontario
Excelsior Spgs Mid School MO
F R Rice Elementary TX
Fargo Middle School ND
Father Gerald Labelle School Ontario
Father Michael McGivney School Ontario
Fenelon Falls School Ontario
Frontenac County Elementary School Ontario
Fulmore Middle School TX
Fuqua Private School VA
Gallatin County H S KY
Georgian College Ontario
Georgian College Ontario
Glen Abbey Public School Ontario
Gloucester County College NJ
Gloucester County Library NJ
Good Shephard Elem Ontario
Goodnight Jr High School TX
Govalle Elementary School TX
Graham Elementary TX
Great Bridge Middle School South VA
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Gullett Elementary School TX
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Harris Elementary School TX
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Hespeler East Public School Ontario
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Hill Elementary School TX
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Holy Family School Ontario
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Houston Elementary TX
Hurley School MO
Iona High School Ontario
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Joslin Elementary School TX
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St Augustine Secondary School Ontario
St Clair Intermediate School MI
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St Elmo Elementary TX
St Johns Catholic Educational Center MN
St Johns School TX
St John s School TX
St Joseph s Elementary Ontario
St Jude Catholic Ontario
St Mark Elementary Ontario
St Monica Elementary Ontario
St Nicholas Catholic Ontario
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St Thomas D Aquin Elementary Ontario
Stewartsville Elementary NJ
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Taylor Elementary School VA
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The David School KY
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Trailwoods Environmental Science K C MO
Travis Heights Elementary TX
Trenton High School Ontario
Upper Perkiomen H S PA
Upper Township Middle School NJ
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Windber Elementary PA
Winn Elementary School TX
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riculum. The physical structure includes proper spaces for infrastructure, electronic equipment storage closets, and communications room.

Instructional needs include proper space, lighting, and environment and the equipment within the classroom or lab; and curriculum needs include such facilities as the TV studio as a learning lab.

Voice, data and video technologies enhance the curriculum and become tools for teaching and learning in many ways:

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- **Technology provides virtual reality experiences**—tech-prep, science, art, graphics, TV productions, CAD/CAM.
- **Technology provides remote access**—distance learning, robotic investigation, interactive distant exploration.
- **Technology provides simulation**—science, travel, operational equipment.

Historically, school districts have also used technology for administrative purposes, and new technologies have expanded their capabilities. Technology enhances a school district's business administration by handling correspondence, finance, communication, information distribution, employee records, payroll, and reporting. And technology streamlines school administration tasks such as enrollment, attendance, scheduling, and grading.

A master plan

Designing for technology begins with a master plan that defines the district's mission and vision and identifies its main objectives. This master plan should reinforce and enhance the district's educational philosophy. It should describe the tools that enable the district to enhance the learning experience for students and improve the efficiency of administration. It should lay the groundwork for future advances and allow for ongoing growth, change, and obsolescence.

The master plan should also identify the ongoing staffing levels and costs required to maintain and operate the systems and to train others. It should identify the necessary budget for annual upgrading of obsolete software and equipment. More often than not, most districts are understaffed, and one person tries to do the work of five people. The educational community could learn from the business community and develop a solid plan for technology that includes budgeting for upgrades and operating costs; buildings with integrated infrastructure; room for change, growth, and adoption; and a staff support system for operations, maintenance, training, and support.

A successful master plan must have the support of the administration, staff, students, and community. Teachers must receive proper training in the use of the new technologies before they can successfully teach and facilitate the learning processes. In

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fact, districts that have used technology for any length of time have found that staff development must be continuous.

The master plan must identify the ongoing operating costs for the new technologies, which include:

- **Telephone service:** monthly costs for analog and digital dial-tone.
- **Cable service:** monthly access costs, if any.
- **Internet connection and access:** fees based on bandwidth and network features.
- **District wide-area network (WAN):** leased telecommunication lines or cable TV service.

The costs for these services will be affected by the region of the country in which the district is located and the discount rates established in rulings that are expected in the spring of 1997 as a result of the Telecommunications Act of 1996.

The plan should also specify tools for technology, which can be categorized into four areas, each with a different life expectancy:

- **Applications:** computer software, videotapes, and discs—one to 2 years.
- **Equipment:** video equipment, computers, and peripheral equipment—three to 10 years.
- **Systems:** telephone, video headends, computer network hubs and servers, data access services—four to 10 years.
- **Infrastructure:** communications rooms and closets, pathways and cable trays, conduits and outlets, power, lighting and environmental controls—25 to 50 years, or the life of the building.

Data and voice systems

To most people "school technology" means computers, first and foremost. And in fact, school computer use has expanded from separate computer lab to classrooms, staff areas, media centers, and independent learning areas, making computers accessible to students and teachers alike throughout the day. Computer labs on carts are replacing fixed labs, and small notebook computers are supplementing or replacing larger models. In some schools, teachers use notebook computers that can be connected to the school network in a classroom or staff office, and students are being given notebook computers in ninth grade to carry until graduation. Students who graduate are given the computer; those who don't must pay for the computer or turn it back in.

Local-area network systems (LANS) have to accommodate such changes. Wired connections continue to serve key locations, while portable-distribution electronics expands connectivity into learning spaces and wireless LANS connect notebook computers. Standards for wireless networking are being written by the Institute of Electrical and Electronic Engineers, Inc., and should be available this spring. These standards will help lower prices and allow growth in size and speeds of networking. Wired networks will continue to play an important role for high-speed networking and for providing the backbone to wireless technology.

The latest trend in classroom computer networking is using the Internet, a worldwide "network of networks" that has been around for some 20 years. The Internet's ticket to popularity is the World Wide Web, with its graphics-based hyperlinks that

make searches intuitive. The immediacy of Internet e-mail provides for around-the-world access to students, friends, acquaintances, and resources. But the Internet's popularity has led to some problems, including slow access speed and traffic jams that interrupt access and cause disconnections from Internet servers. The Internet and similar services will continue to grow in speed and accessability as demand for better services forces Internet providers to meet customer demand. Other problems are security and the possibility that students will access inappropriate, sometimes dangerous content; these maladies require equipment and usage policies to protect computers from viruses and discourage inappropriate use.

Voice systems are another important technology. Telephones in classrooms serve both traditional and high-tech functions—as school intercoms, emergency communications, the teacher's business telephone, and the instructional telephone. Compared with computer and video communications, the telephone is an inexpensive link for accessing other classrooms, schools, homes, the community, and beyond.

Voice mail—preferably one large voice-mail system connected to all district facilities through a networked telephone system—improves communications between administrators and teachers and between teachers and parents, and unlike e-mail, it does not require special equipment in the home.

Video systems

"Moving pictures" have been recognized as an effective instruc-

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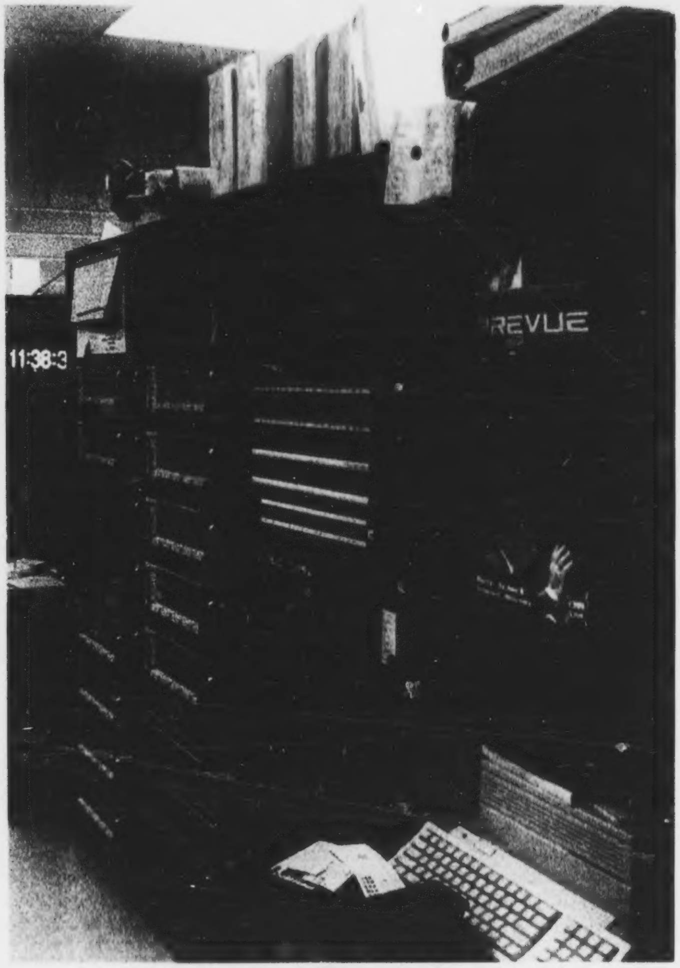

Video headend and work room, Champlin Park High School, Anoka/Hennepin Public Schools, ISD No. 11, Anoka, Minn.

tional device since the 16 mm film of the 1950s, now replaced by videotape and videodisc. When classrooms lost the large projected image of 16 mm to 25-inch TVs with VCRs on carts, they gained portability and reliability. Cable TV brought further advances. Current video systems provide three major services: broadcast/cablecast access, video headend access, and interactive video:

- **Broadcast/cablecast** access brings into the classroom educational programs and local, regional, and national information and news.
- **Video headend** access provides centralized distribution of video programs from VCR tapes and videodiscs; video bulletin boards to provide continuous up-to-date online information; live video from a production center studio or portable studio-cart; satellite broadcast reception; and remote-control-access media retrieval through telephone, dedicated control systems, or computer control systems to allow the capabilities of a video headend to be controlled from the classroom.
- **Interactive video** includes the interconnections within individual schools, within an entire school district, or nationwide. Two-way interactive video includes video conferencing, teleconferencing, distance learning, and video telephone.

The real strength of video systems is interactive video, which brings physically separated students, teachers, and classrooms together into a single teaching and learning environment. The interaction allows students to participate throughout a project and affect the outcome of an event as it happens. Consider the difference in learning between videos, films, and television broadcasts that lead us down a path chosen by a writer, director, and producer, versus live program directors and technicians who take direction from students as they progress through collaborative instruction.

Proper video display as defined by the National Television Standards Committee requires a 32 to 35-inch TV in a typical 800-square foot classroom. The standard for high-definition television (HDTV) recommends a viewing distance of three times the horizontal viewing dimension, requiring a screen width of 6 to 7 feet and a screen height of 3.5 to 4 feet. When computer graphics are introduced, the viewing size is more in line with the HDTV standard, requiring a larger screen. Whenever video will play a large part in instruction, designers should keep in mind these parameters for room design and layout.

Cabling systems and standards

Cabling can provide connectivity for several generations of equipment and systems. By adhering to cabling standards that have been developed and supported since the early 1990s, school districts can install a "structured cabling system" that will provide a cost savings in the long run. Initial costs may be higher, but a standards-based cabling system for voice, data, and video will not need to be replaced every time a new network protocol is selected, thus reducing long-term costs. And a cabling system that is properly designed, installed, tested, documented, and maintained is more reliable. With such a system, the cable is seldom the culprit when problems arise.

Installing cable and connecting components with standards-based ratings does not necessarily constitute a standards-based installation. The standards define parameters for installation to ensure full performance potential of the cable system. The standards establish the high-performance qualities that can be expected from structured cabling systems. A Category 5 data cable system can be expected to perform at two or three orders of magnitude above the systems used in most schools today; with multimode fiber-optic cable, the order goes to four.

Many schools consider today's networks fast enough for today's needs. But advances in networking applications and faster computers will tax the capabilities of many current networks. Higher speed networks and more advanced network protocols supported by standards-based cabling systems will allow proper operation for some time to come.

Two words of advice: First, some existing systems can consolidate voice, data, and video systems—all of which require cabling—onto one cable system. But at this time and for the foreseeable future, the cost of multiplexing electronics greatly outweighs the cost of separate cable and electronics for each system.

Second, alternatives to cabling exist for each system, especially data and video. But it is important to compare the cost of the electronics that connects the systems and the true capability of each system type. Often, a performance-versus-cost comparison is not made on an apples-to-apples basis. Thus, one type of system is made to look artificially inflated, and a potentially more expensive system looks more affordable.

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Technical education classroom, Champlin Park High School, Anoka/Hennepin Public Schools, ISD No. 11, Anoka, Minn.

Infrastructure systems

In designing new schools or remodeling existing ones, it is important to provide the proper infrastructure—that is, building layout and design, communications systems, electrical power systems, mechanical systems, and pathways—to support technology needs. Those needs are changing constantly: Media centers are changing from strictly text libraries to electronic media reference, access, and distribution centers. Traditional industrial arts shops are evolving into tech-prep labs and simulation and CAD/CAM labs. Science classes are digitizing experiment results, analyzing data, and simulating physics and chemistry experiments that were impossible in the past. Classrooms and independent learning areas now incorporate technology work areas. And teachers and administrators need work areas that incorporate networked computers and telephones.

Rooms for communications systems are needed to house telephone, paging, and intercom systems, computer network hubs, servers and network control systems, and video headends. These rooms should be secure, with adequate space for operating and servicing the equipment, proper ventilation, temperature and humidity control, fire suppression, and proper lighting and electrical power. Electrical power systems should be designed to deal with the nonlinear loading that electronic equipment presents to the power system. The electrical system should also include a bonding and grounding system that meets National Electric Code and Electronic Industries Association/Telecommunication Industries Association codes and standards.

Pathway systems provide the support cables from communications rooms and closets to the multitude of outlet locations throughout a school. These systems should be designed to accommodate growth and change.

Infrastructure standards include the following:

- EIA/TIA 569 defines standards for communications rooms, closets, entrance facilities, raceways, and conduits for the equipment and cabling systems required for communications connectivity.
- EIA/TIA 607 defines standards for bonding and grounding of communications cabling infrastructure to ensure human and equipment safety.

Technology today and tomorrow

All schools have some form of technology already. Usually, the inventory includes computers, software, administrative and classroom telephone communications, TVs and VCRs, and data and video networking. A school district's master plan should establish minimum acceptable performance criteria for the systems, equipment, and applications. Most existing equipment will continue to be useful as the new technology plan is implemented. But don't shoehorn in existing equipment that does not fit into a comprehensive plan—it will cause continuous frustration.

A solid plan includes an implementation schedule for integrating new equipment and training staff members. The plan should be reviewed periodically as the implementation progresses to ensure consistency and accountability. Periodic updates to the plan should address any changes in technology, educational philosophy, available funding, and staffing.

The plan should also look to the future, taking into account, for example, coming changes in telecommunications. This technology took a major turn in 1996 with the passage of the Telecommunications Act. The result is competition for telephone, cable television, data networking, and new unforseen services. Telecommunications, computer communications, and video communications will arrive at our buildings in the form of copper cable, coaxial cable, fiber-optics, wireless, and satellite. Each will have benefits and detractors. Your technology designer must weigh the pros and cons of each form of communications access for your specific technology needs.

Schools that enter the networked world must also keep abreast of developments in software and in hardware security. For example, video-on-demand will replace today's media-retrieval systems with digital video jukeboxes that don't require an operator to load selected titles. And that means video will move from being a classroom strategy to a strategy used by individual students or small workgroups.

When it comes to designing for technology, no one's crystal ball is completely clear. The best strategy is, first, to stop and consider the whole picture. Then reflect on the impact a particular technology will have on student outcomes, on teaching and learning methods, and on facility operation and utilization—and reflect on its ability to adapt to constant change. ■

Daniel T. Cincoski, RCDD, *is director of technology design at Armstrong, Torseth Skold and Rydeen, Inc., Architects, Engineers & Technology Designers, in Minneapolis, Minn.*

CABLING SYSTEMS AND STANDARDS

- **Voice cabling:** twisted-pair copper cable. Cabling standards: EIA/TIA 568A, TSB67, TSB72.
- **Data cabling:** twisted-pair copper cable and fiber-optic cable. Cabling standards: EIA/TIA 568A, TSB67, TSB72.
- **Video cabling:** coaxial cable, twisted-pair copper cable, and fiber-optic cable. Cabling standards: broadband, FCC part 76 and SCTE; baseband, FCC and EIA.

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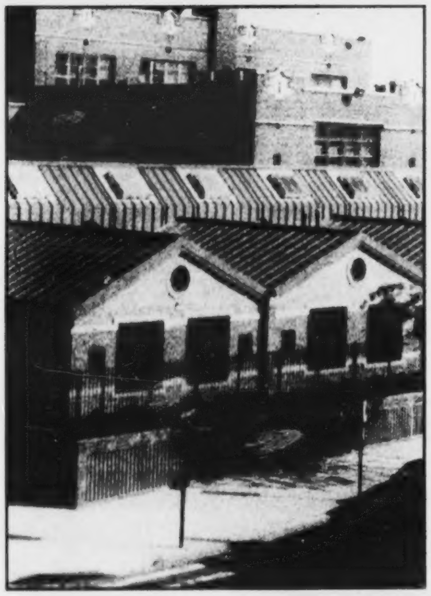


New York City Mini-Schools

Queens, NY

In the New York City borough of Queens, mini-schools have been constructed to help alleviate overcrowding in the Richmond Hill area. Two similarly designed buildings, P.S. 54 and P.S. 55, are topped with standing seam metal roofing.

Both schools were designed by New York City's William A. Hall Partnership. In each case, the firm selected High Seam Panels by AEP-Span, Dallas.

P.S. 54 was completed in mid-1992. The $5 million building has a 220-student capacity and a total area of 11,617 sq. ft. It has four regular classrooms, four kindergarten rooms, a staff lounge, a mechanical rooms and separate bathrooms forstudents and faculty.

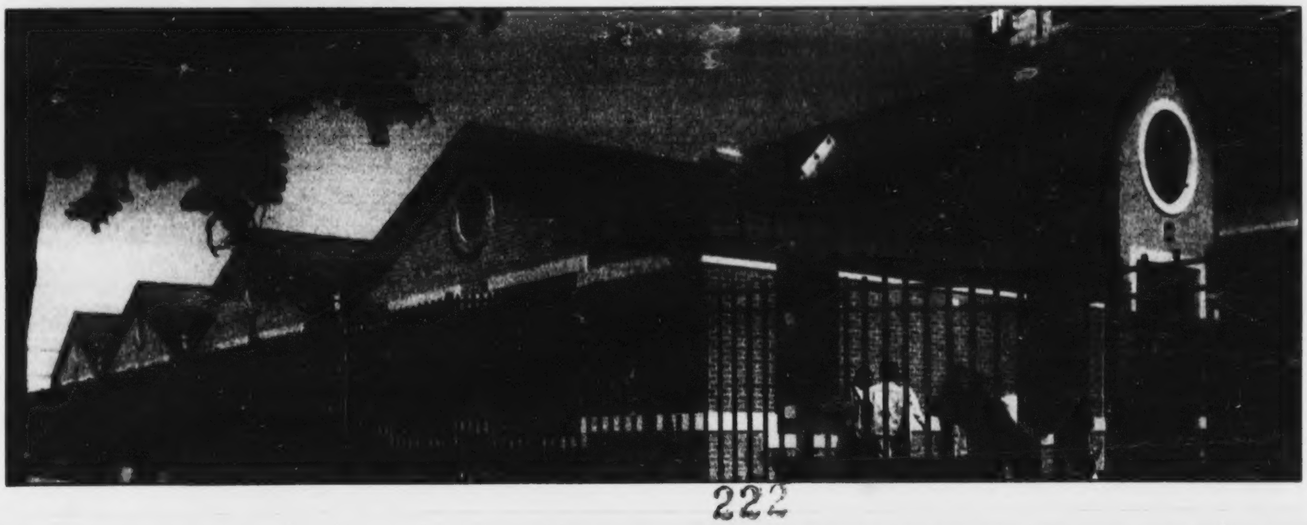
A bit larger, P.S. 55 was completed late in 1992 at a cost $5.7 million. It has a 250-student capacity and encompasses 15,300 sq. ft. of space. It features six regular classrooms, four kindergarten rooms, a 74-seat cafeteria, office space, a kitchen, a staff lounge, a mechanical room and separatebathrooms for students and faculty.

Combined, AEP-Span supplied about 26,000 sq. ft. of Slate Grey-colored, Kynar 500-coated 24-gauge steel panels. The architectural standing seam panels were attached to a 2 1/2"nailboard over a 1 1/2" metal deck.

F & V Mechanical, East Farmingdale, NY, and G.A. Contractors, Queens, shared general contracting duties through a joint venture for the P.S. 54 project. Metal Profiles of Wade River, NY, installed the roofing.

Milnor Construction Corporation, Bayside, NY, was the general contractor for P.S. 55. The Roswal Roofing was the roofing sub-contractor.

The construction of both schools was handled by the New York City's Board of Education and the NYC School Construction Authority (SCA). Leon Levental was the SCA project manager. Michael Ankuda was William A. Hall Partnership's project architect for both designs.

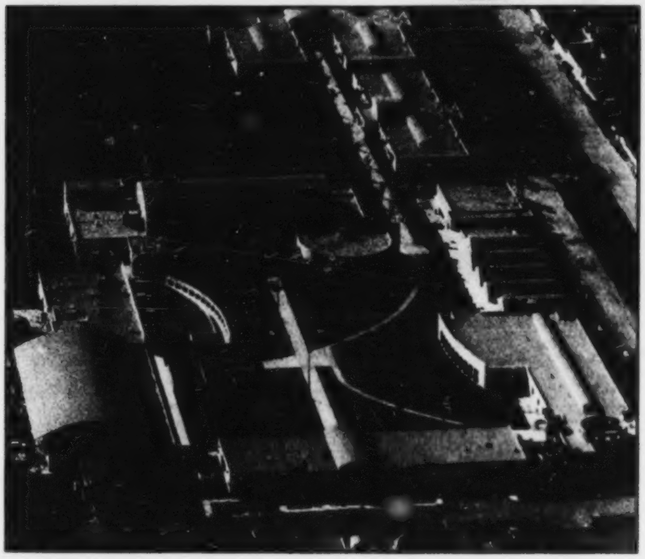


Miami Job Corps Center

Harper, Carreno, Mateu, Sackman Inc.
Coral Gables, FL

Location: Carol City/Miami, FL
Construction Date: 1993
Owner: U.S. Department of Labor
Architect: Harper, Carreno, Mateu, Sackman, Inc.
General Contractor: Vasallo Construction, Miami
Metal Panel Installer: Allied Architectural Metals Inc., Fort Lauderdale, FL
Metal Roofing Mfr: Delcoa Industries

Project Specifics: Approximately 28,000 sq. ft. of Delcoa Industries' 24-gauge galvanized steel DRP panels were installed over a metal deck. The panels were finished with a Patina Green Kynar 500 coating. .

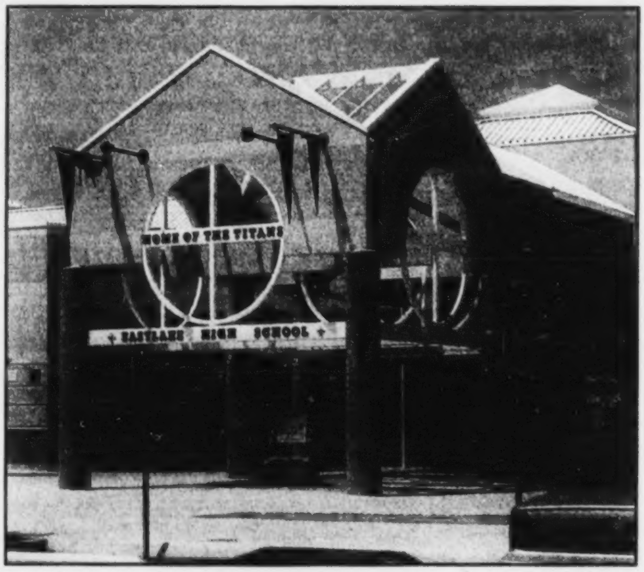


East Lake High School

Ruhnau-Ruhnau-Todd
Carlsbad, CA

Location: Chula Vista, CA
Construction Date: 1992
Owner: Sweetwater Union High School District
Architect: Ruhnau-Ruhnau-Todd
General Contractor: Centex Golden, San Diego, CA
Metal Panel Installers: R.K. Burner (phase I) and West Coast Sheet Metal (phase II)
Metal Roofing Mfr: ASC Pacific

Project Specifics: Selected for durability and ease of maintenance, 136,000 sq. ft. of ASC Pacific's Klip Rib panel system was utilized for the initial phase of construction of East Lake High School. Another 117,000 sq. ft. of the product was installed during the project's second phase. The 16"-wide Klip Rib panels were supplied in two thicknesses, 22- and 24-gauge, and in two colors, East Lake White and East Lake Blue.The structural capabilities of the roof panels enabled the architect to minimize the amount of structural decking utilized, saving the school district money.

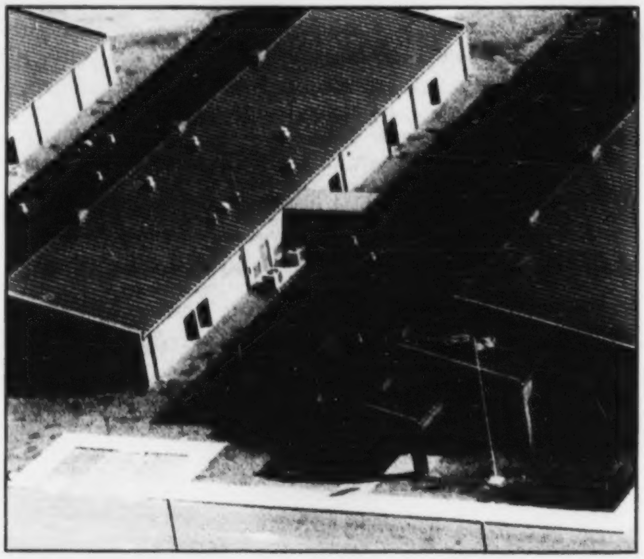


Forsyth County Middle School

Cummings, GA

Designer: Southern Engineering Co., Atlanta, GA
General Contractor: Charles Black Construction Co., Cleveland, GA
Metal Roofing Mfr.: Pascoe Building Systems Inc.

Project Specifics: The school's design includes five connecting buildings and a 65,000 sq. ft. gymnasium. Pascoe's PP-10 standing seam roof system was utilized for the buildings. The panels were formed from 24-gauge steel with a Colonial Brown Kynar finish. Pascoe's PP-4 panel was also utilized on the project as a skirting around the perimeter of the gymnasium. Those panels were also finished with a Colonial Brown Kynar coating.



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Edgemont Elementary School

Laird Polson Architects
Calgary, Alberta, Canada

Location: Calgary, Alberta
Construction Date: 1991
Architect: Laird Polson Architecture
General Contractor: Granville Constructors Ltd.
Metal Panel Installers: Canterbury Roofing Ltd.
Metal Roofing Manufacturer: Custom Metal Erectors Ltd. Roofing

This 4,939 sq. meter Edgemont Elementary School features a bright yellow, gabled standing seam metal roof system. Calgary school officials chose the Dofasco 5000 Series panels for their durability, color and clean aesthetic lines. The prepainted metal roofs are accented by blue flashing and trim. The school's warm and colorful design made its 650 students feel right at home in their residential neighborhood.

Standing Seam metal roofs are the preferred roofing systems for a growing number of school buildings all over the country because they are:

■ **Weathertight**
Superior weathertightness is a significant advantage of the standing seam metal roof. It is a water barrier, and factory-applied sealants produce weathertight connections between the roof panels.

■ **Energy efficient**
Systems accommodate up to 12 inches of insulation, preventing transmission of heat and cold and minimizing condensation under the roof panels.

■ **Durable**
Concealed sliding clips handle thermal shock be permitting movement without damage. Roofs qualify for a class 90 wind uplift rating in new and retrofit construction, the highest rating given by Underwriters Laboratories.

■ **Cost effective**
Life expectancy is longer, less maintenance is required and life cycle costs are lower than for any other type of roof. At a Huntington, Ind., school, a standing seam metal roof which will last 20 years or more was calculated to cost from 84 to 23 percent less than various other roofing systems expected to last only 8 to 15 years. At a Pittsburgh, Pa., area school, the cost differences ranged from 55 to 24 percent less.

■ **The low slope solution to a flat, leaky roof**

In most retrofit projects, the standing seam metal roof can be installed over an existing flat roof, eliminating costly and disruptive tear-offs. Slopes as low as 1/4 inch to 12 inches are the norm.

For more information about any of the projects featured in this insert, call or contact:

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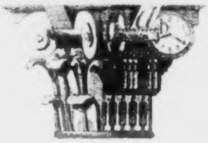
ELEMENTARY SCHOOLS
New Construction



ALDRICH ELEMENTARY SCHOOL OMAHA, NEBRASKA

The Schemmer Associates Inc.

The Schemmer Associates Inc.
1044 N. 115th Street, Suite 300
Omaha, NE 68154

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(402) 493-4800

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Principal-in-Charge

R. William Cramer, AIA
Project Manager

Gordon Malm, RA
Project Designer

Terry Wood, AIA
Project Architect

Todd J. Mack, PE
Mechanical Engineer

Brad Farmer
Electrical Designer

Jeff Ehler, PE
Structural Engineer

Jeff McGill
Project Representative

Client
Millard Public Schools
(402) 895-8201

Grade span
K-5

Current building capacity
450

Current building area
49,500 square feet

Total project costs
$3.35 million

Cost per square foot
$67

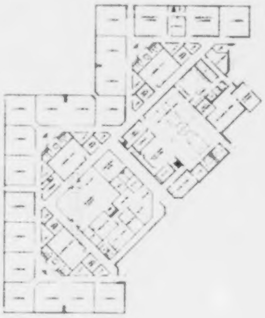
Space per student
110 square feet

Cost per student
$7,440

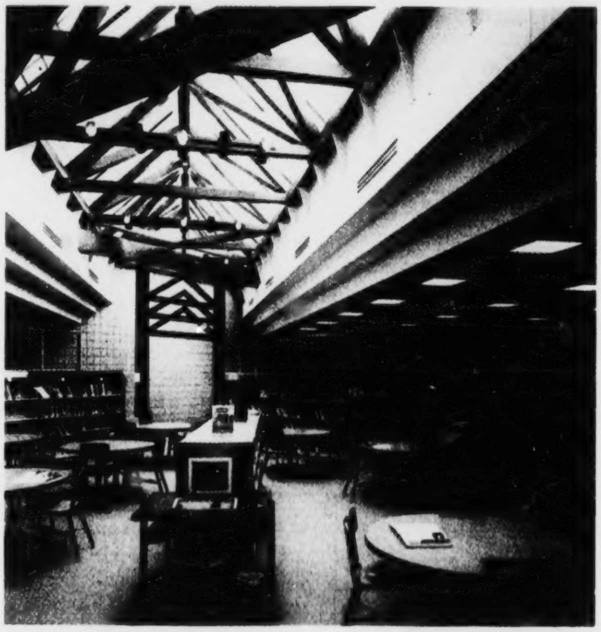
Completion date
1994

In developing Aldrich Elementary, Millard Public Schools achieved its goal of creating a "state-of-the-art" facility with a fresh innovative approach to the design and function of the school. The concept included semi-enclosed classrooms and decentralization of classroom support such as storage, small group rooms, coat racks, and restrooms.

Three triangular classroom modules with their internal support spaces make up the classroom quadrant of the school. The administrative office, resource center, multipurpose room, kitchen, and service areas are located in a central location to best serve the classroom modules. Wide classroom openings in place of doors, and stepped windows, encourage visual interaction yet maintain classroom separation.



Floor plan



Media center

Classroom

The structure is steel frame with steel studs and a brick and burnished block veneer. All interior corridor walls are masonry with burnished block accent.

Features in the school include a large colorful, tubular skylight, triangular skylights over each module, full multipurpose room with an accessible platform, computer networking throughout the building, moveable partitions allowing team teaching, and tackable walls in all teaching spaces. The facility's many windows at the entrance improve supervision, and the triangular theme reduces the massing of the building in relation to the adjacent residential area. The design allows after-hour community access to the multipurpose room. ■

Exterior

ELEMENTARY SCHOOLS
New Construction

BREAK-O-DAY
NEW WHITELAND, INDIANA
The Odle McGuire & Shook Corporation

The Odle McGuire & Shook Corporation
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Project Manager
Mike Rossillo
Project Architect
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Landscape Architect/Interiors
Bill Mosbaugh, PE
M.E.P.
Lynch, Harrison, Brumleve, Inc.
Structural Engineers

Client
Clark-Pleasant Community School Corporation
(317) 535-7579

Grade span
K-5

Current building capacity
600

Current building area
77,000 square feet

Total project costs
$5.9 million

Cost per square foot
$77

Space per student
128 square feet

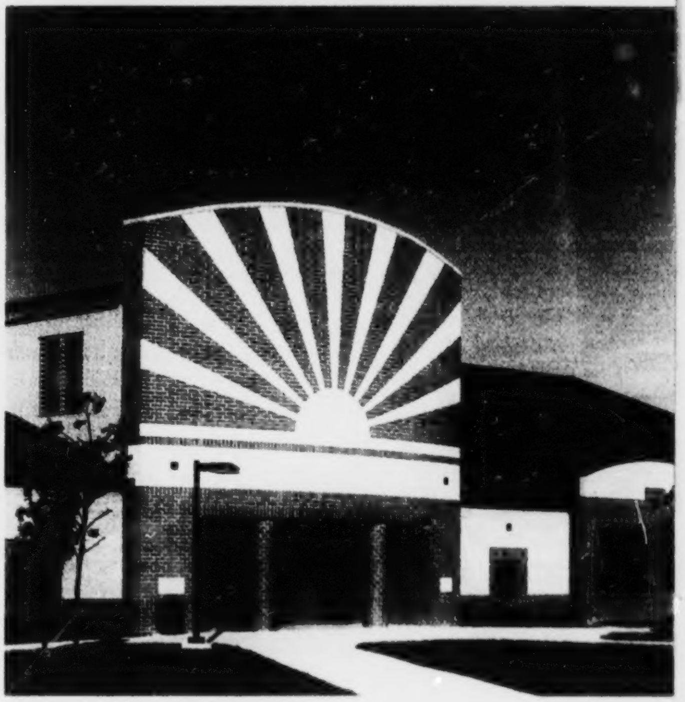
Cost per student
$9,858

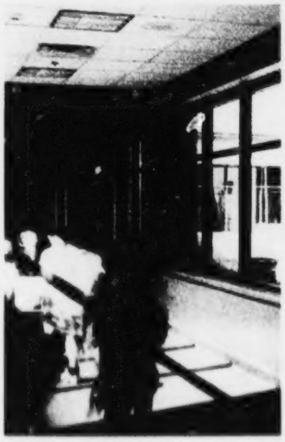
Completion date
September 1995

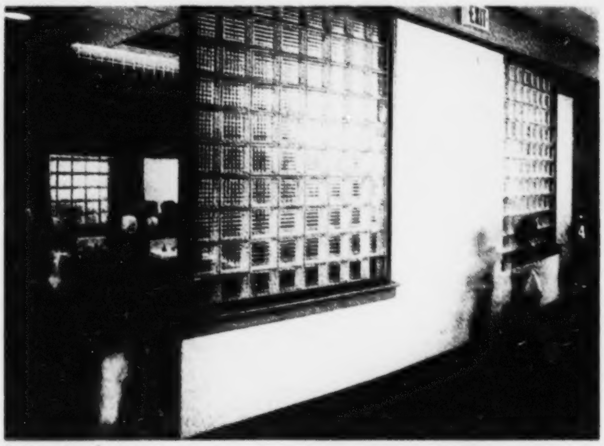
Thirty years ago, when an elementary school was being built on the Rympa family farm, John Rympa wanted the school to be named after the farm: Break-O-Day. In 1993, when considering the design for a replacement elementary school, the school corporation wanted to build on the heritage and inspirational character of the school's name. The design for the new Break-O-Day school greets students and visitors with a sunburst that brightens their day and speaks to the positive educational environment built by the educators within.

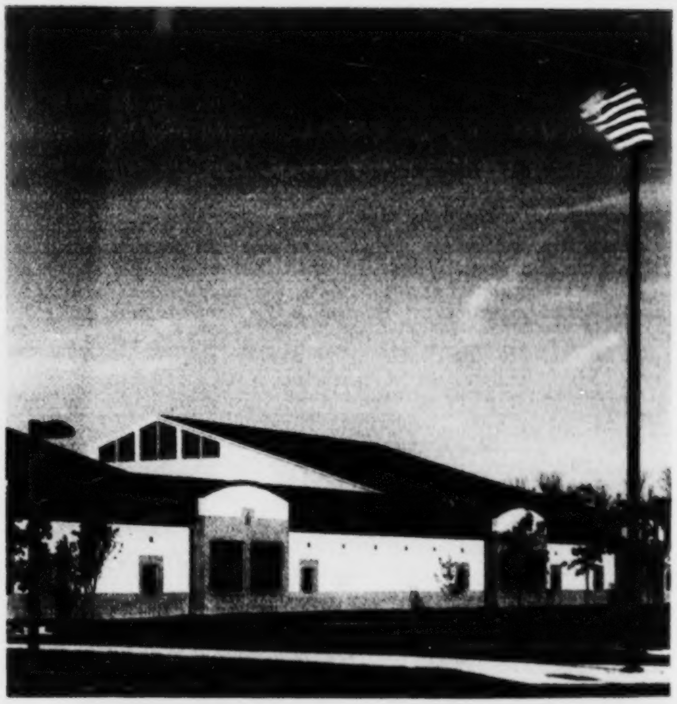
This theme is enhanced by use of ample natural light in the corridors and media center. Windows provide views between the media center, cafeteria, and receptionist area and the corridors. Classroom entrances are highlighted by floor patterns, bulkheads, and tackwalls. Bright colors throughout the building also add cheer to the school day.

The faculty wanted togetherness with separation between grade levels but without the travel-distance problems inherent in the winged scheme of the old elementary school. Grade-level classrooms are located around and separated by a core of instructional support areas, such as the media center, computer classroom, tutorial spaces, and administration offices. They are connected by cross corridors that also provide access to the courtyards and restrooms.

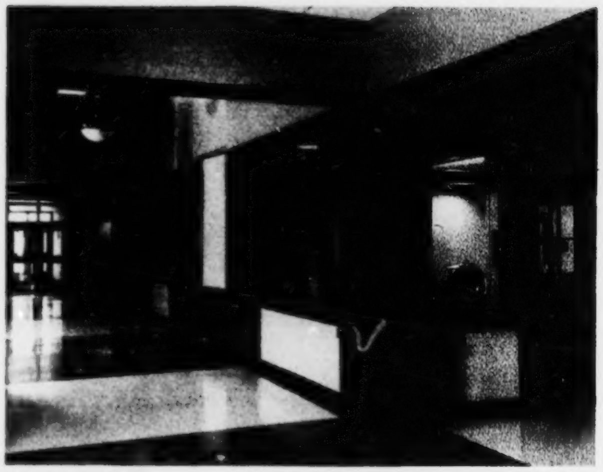

Exterior


Courtyard corridor


Restroom wash area



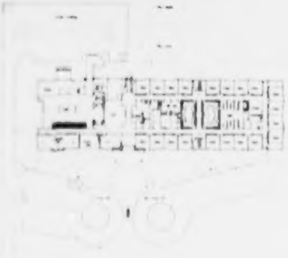
Entrance



Administrative lobby

Activity and instructional areas are grouped on either side of the central corridor between administration offices and the cafeteria. The activity area includes a full-size gymnasium that addresses the school corporation's need for additional competition and practice gyms. The gymnasium, platform, and cafeteria are grouped together to allow for flexible scheduling of programs and to facilitate after-school activities. After-hours gates are located adjacent to the administration office, which has a clear view of principal entrances and the cafeteria.

Community and school playgrounds are hidden from the road by the school. Buses, parent cars, and faculty cars use separate circulation systems, minimizing hazards to students and vehicles. Parking is provided adjacent to play fields for community use and faculty parking during school hours.



Site plan

Budget goals and functional criteria established by the board were met by using a sloped roof, a simple building footprint, and a regular structural and planning module. ■

Group education in courtyard

ELEMENTARY SCHOOLS
New Construction

BELVILLE ELEMENTARY SCHOOL
BELVILLE, NORTH CAROLINA

Boney Architects, Inc.

Boney Architects, Inc.
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Wilmington, NC 28405

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Staff Architect

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Ronn Shank
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W. Erskine Smith, III
Computer Operations

Richard Stephen Smith
Construction Administrator

Howard T. Capps & Associates
Landscape Architect

Andrew & Kuske Engineers
Civil Engineers

Century von Oesen Engineers
Electrical Engineers

Cheatham & Associates
Mechanical Engineers

Morrison & Sullivan Engineers
Structural Engineers

Client
Brunswick County Schools
Mr. Marion C. Wise, Supt.
(910) 457-5241

Grade span
K-5

Current building capacity
648

Current building area
94,000 square feet

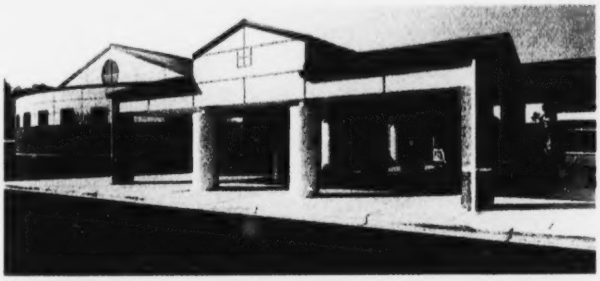
Total project costs
$7.07 million

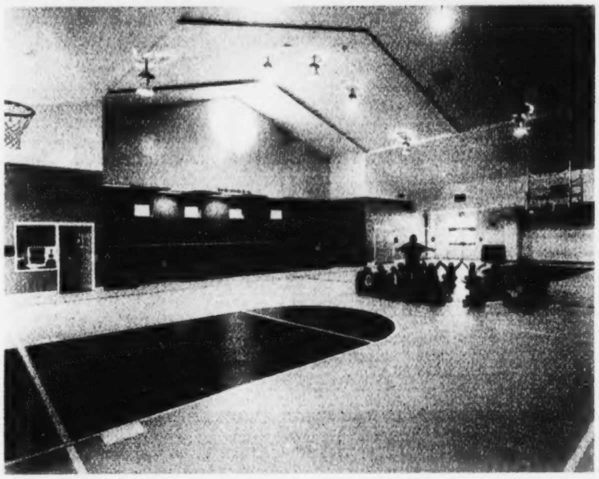
Cost per square foot
$75

Space per student
145 square feet

Cost per student
$10,910

Completion date
August 1996


Main entrance

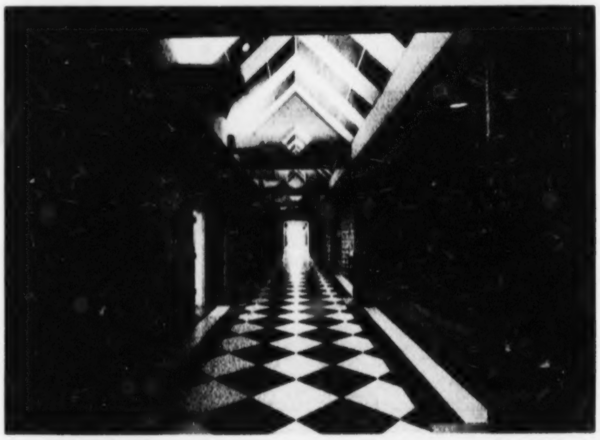

Gymnasium

Belville Elementary School is a landmark for its rural community, offering a gymnasium for community use. Its flat site drains into natural wetlands that provide study areas for science students. The adjacent Cape Fear River landing will ultimately be a source of education for older students.

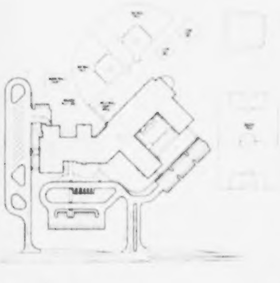
The main entrance, gymnasium, cafeteria, and other public areas are placed on the site facing the road. Less public classroom wings are rotated at a pivotal point in the plan, highlighting the theaterette/music room and breaking up an otherwise long corridor. The two wings form a courtyard that serves the art program and provides a contained play area.

The gymnasium's unique plan provides a tiered seating area for instructional use and a stage for larger performances. The tiered seating area doubles as a performing area for music groups while the audience sits on the floor.

Ceilings throughout the school are raised to provide visual relief and excitement for young children. Colorful floor patterns create points of reference for student control: "Line up behind the red square, and we'll go to lunch."


Classroom corridor

The structural system and HVAC systems are extremely simple and are designed to permit rapid construction. Through careful planning, the design team was able to keep the project cost at $75 per square foot, well below the cost of similar projects. ■


Site plan

ELEMENTARY SCHOOLS
New Construction

BREWER ISLAND ELEMENTARY SCHOOL FOSTER CITY, CALIFORNIA

The Steinberg Group

The Steinberg Group
60 Pierce Avenue
San Jose, CA 95110
Robert T. Steinberg, FAIA
(408) 295-5446

Client
San Mateo-Foster City School District
(415) 312-7700

Grade span
K-5

Current building capacity
475

Current building area
38,937 square feet

Total project costs
$6.4 million

Cost per square foot
$164

Space per student
32 square feet

Cost per student
$13,475

Completion date
January 1996

Site plan

Brewer Island Elementary School represents a challenging opportunity to create a stimulating learning environment with a very public presence. Brewer Island Elementary School represented several "firsts" for the community. It is the *first* new elementary school in the growing community. It also incorporates the *first* newly designed shared use facility with the City of Foster City.

The District's programming vision for this school conceived of a facility that was an extension of home, the community, and society, providing strong channels of communication. By utilizing a cooperative planning process and an effective communication plan, a design concept was achieved that meets the needs of the San Mateo-Foster City School District, the City of Foster City, and the community.

The school provides much needed space to alleviate overcrowding within the District, but existing facilities at the site were primarily used for community programs. It was necessary, then, to create an educational environment that continued to be a resource to the community. The community enjoys shared use of the gymnasium-multipurpose facility, an integrated on-site preschool, and site plan that separates school activities without evoking a sense of isolation.

Library entrance

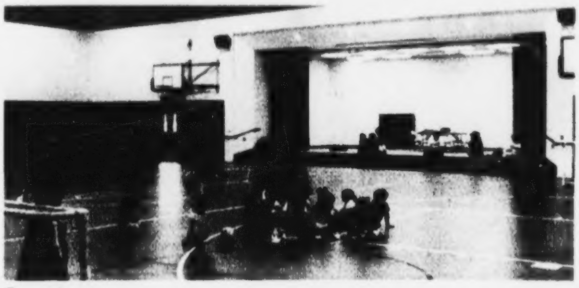
The design is contemporary, yet in a traditional Cape Cod-style with marine characteristics unique to this bay city. Charged with a mandate to reflect the architectural vernacular and scale of the surrounding residential community, the architect conceived a village-like atmosphere that appeals to the 550-student, K-5 population. The varying heights and colors embodied in the design concept charm and enliven a child's curiosity.

These design elements are carried into the classrooms. Unique areas include outdoor learning courtyards between classrooms equipped with wet counters for the science and art curriculum. These outdoor learning spaces reflect the school's mission for an educational milieu that models respect for the environment and develops understanding for the interdependent nature of the world.

The site represented a challenge for a variety of reasons. Located on a landfill adjacent to San Francisco Bay, safety concerns regarding liquefaction associated with seismic activity, settlement, and integrity of neighboring levees all were addressed in the design. By utilizing a wood/steel hybrid construction supported on a "gridded" mat foundation, these concerns were alleviated.

Access and traffic issues were mitigated by incorporating several drop-off sites and two parking lots with circular ingress and egress. Lastly, particular attention was paid to acoustics. Air traffic noise from the adjacent flight path for San Francisco International Airport required special consideration in the area.

Faced early on with a construction estimate that exceeded available funding, the architect was able to provide design alternatives that preserved the integrity of the educational and building program while staying within budget guidelines. ■



Gymnasium

BEST COPY AVAILABLE

ELEMENTARY SCHOOLS
New Construction

CALYPSO ELEMENTARY SCHOOL BETHLEHEM, PENNSYLVANIA

Spillman Farmer Architects

Spillman Farmer Architects
One Bethlehem Plaza,
Suite 1000
Bethlehem, PA 18018

Daniel L. Harrigan, AIA
(610) 865-2621

Design team
Robert A. Spillman, AIA
Principal-in-Charge

Daniel L. Harrigan, AIA
Design Architect

Robert A. Furst, AIA
Project Architect

Salvatore Verrastro, CCS, AIA
Specifier

Snyder Hoffman
Mechanical and Electrical Consultant

Adams Associates
Structural

Architerra
Landscape Architects

D'Huy Engineers
Resident Engineers

Cowan Associates
Site Engineers

Client
Bethlehem Area School District
(610) 861-0500

Grade span
K-5

Current building capacity
300

Current building area
33,594 square feet

Total project costs
$3.2 million

Cost per square foot
$95

Space per student
112 square feet

Cost per student
$10,665

Completion date
August 1996

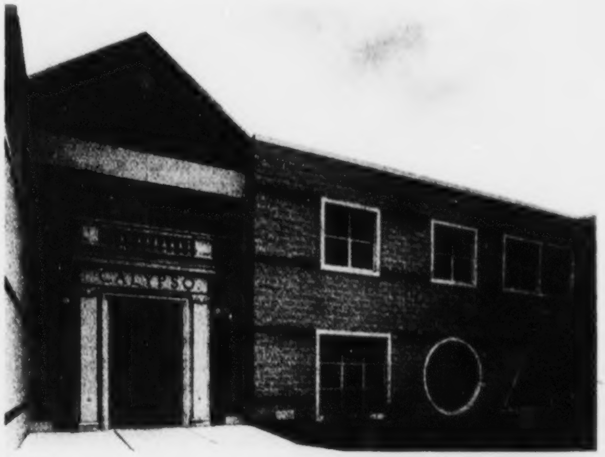
Calypso School, a focus and hub of neighborhood loyalty and one of the last elementary schools in Bethlehem, Pa., to which all students walk, was outdated. The proposed demolition of the existing school and construction of a new one generated much interest and debate in the community.

Spillman Farmer Architects designed the new school to provide a continuing sense of community. They presented the exterior design at meetings to which neighbors were invited. Familiar and comfortable materials and forms were integrated into the exterior. The original stone entry was also relocated into the new school entrance. The interior layout congregates pods of classrooms into "neighborhoods" on the first and second floors.

The exterior brick "pitched roof houses" relate directly to the classroom within. Other features include a principal's office/conference room with a direct view of the main entrance, a two-story entry lobby, networked computers in each classroom, and a combination music room and stage. Retractable curtains and moveable partitions open up the music room for periodic use as a stage. Exterior brick grilles are integrated into the facades, providing the required fresh air for classroom unit ventilators.

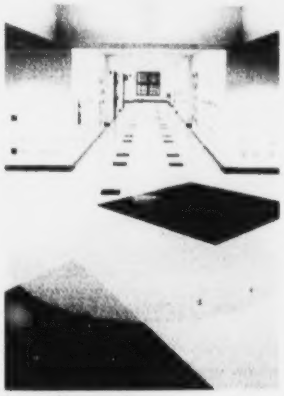
The new school was constructed and occupied prior to the demolition of the existing school. This created an opportunity for the teachers to integrate the processes and methods of the construction project into their lesson plans during the school year. ■

North elevation

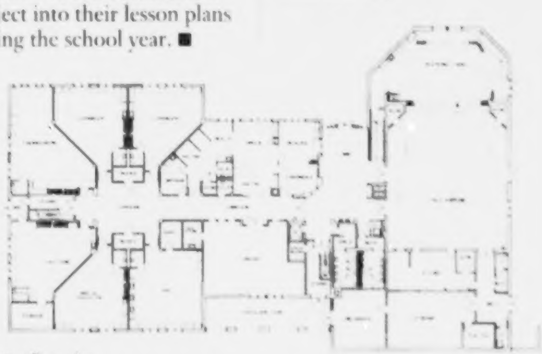


Entrance

Music room stage



Second floor corridor



First floor plan

ELEMENTARY SCHOOLS
Renovations/Additions

CARPENTER, FIELD, AND ROOSEVELT SCHOOLS PARK RIDGE, ILLINOIS

GreenAssociates Architects, Inc.

GreenAssociates Architects, Inc.
832 Custer Avenue
Evanston, IL 60202

Carole Donovan Pugh, AIA
Senior Associate
(847) 328-0852

Design team
Raymond J. Green, AIA
Principal-in-Charge
Carole Donovan Pugh, AIA
Project Manager
Frank Michalski, AIA
Project Architect
David Block
Project Architect

Myn Ancheta Mayer
Debbie Antes

Client
Community Consolidated
School District 64
(847) 318-4313

Grade span
Carpenter: K-6, Field: K-6, Roosevelt: K-6

Current building capacity
Carpenter: 470; Field: 510, Roosevelt: 760

Current building area
Carpenter: 58,084; Field: 76,555; Roosevelt: 84,876 square feet

Building area before addition/renovation
Carpenter: 35,342; Field: 62,613; Roosevelt: 78,133 square feet

Total project costs
$6.5 million

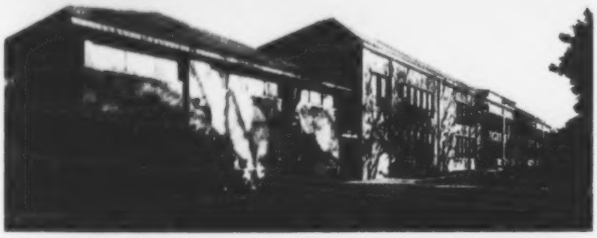
Space per student
Carpenter: 124; Field: 150; Roosevelt: 112 square feet

Cost per student
Carpenter: $6,028; Field: $3,554; Roosevelt: $2,514

Completion date
January 1995

Master planning paid dividends to this growing suburban school district. Its buildings were aging, enrollment was increasing, and facilities were at capacity. GreenAssociates was asked to review the educational program, demographics, and existing facilities to help determine what changes were needed.

A model elementary school program was devised, detailing the population, types and sizes of spaces each school should contain to best reach the educational goals of the district. Six schools in the district were then compared to the model and changes recommended.

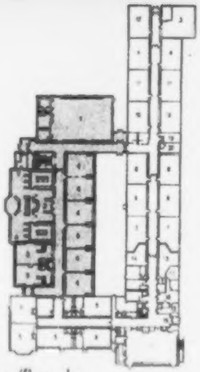


Field/gymnasium addition

Community involvement played a large part in the master planning process: meetings were held with the community, administration, staff, and students to gather information and visualize what the buildings should be.

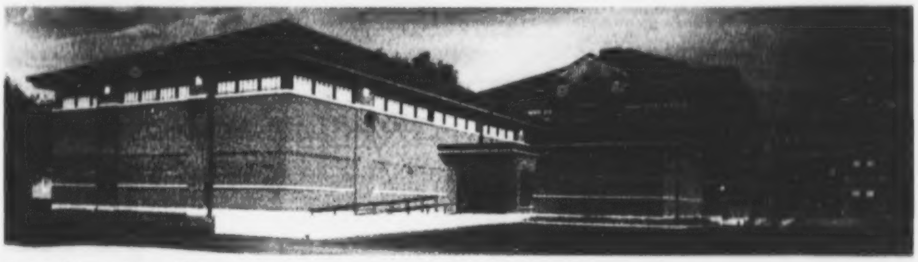
The study concluded that non-classroom spaces should be added to enhance the learning process. Other areas within the buildings were found that were better located for conversion into regular classroom spaces to handle the enrollment increases. Final designs were created that were harmonious with the existing buildings and with the neighborhood.

GreenAssociates believes that the architect must see the "big picture." Through a methodical process of looking at the overall needs of this district, we provided the Park Ridge and Niles communities with a plan for the future. ■



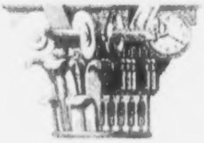
Carpenter/floor plan

Carpenter/learning center story area



Roosevelt/gymnasium addition

ELEMENTARY SCHOOLS
New Construction



COLD SPRINGS ELEMENTARY SCHOOL GLOUCESTER CITY, NEW JERSEY

Vitetta Group

Vitetta Group
642 North Broad Street
Philadelphia, PA 19130

Stephen Carlidge, AIA
(215) 235-3500

Design team
Stephen Carlidge, AIA
Principal-in-Charge

Jirair Youssefian, AIA
Project Designer

Scott Malin, RA
Project Manager

Shawn Flaherty
Richard Holland
Architectural Team

Robert Felix, PE
Rick Cheetham
Anthony Carango
Manuel Malgapo, PE
Anthony Keil
Engineering Team

Robert Koval, RA
Construction Administration

Client
Gloucester City Board of Education
(609) 456-9394

Grade span
Pre-K-3

Current building capacity
800

Current building area
116,000 square feet

Total project costs
$12.45 million

Cost per square foot
$107

Space per student
145 square feet

Cost per student
$15,558

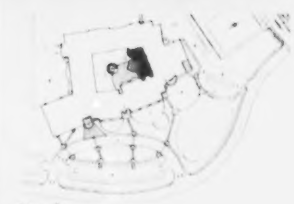
Completion date
November 1996

The quest for increased efficiency led the Gloucester City school board to close its four existing antiquated elementary schools and consolidate all of the district's 1,000 students into a new facility. In order to break down the scale of this large building, the architects conceived of the new school as an assembly of smaller identifiable parts.

Located at the front of the building are single-story preschool and kindergarten classrooms, which are expressed as individual gabled houses in brightly colored, glazed masonry. Adjacent to these "little houses" is a larger, two-story masonry component containing administrative facilities, a gymnasium, and the instructional media center.

In the interior, a skylighted "main street" serves as a welcoming avenue connecting public areas of the building with the classroom area. The looped circulation pattern provides a secure interior courtyard that is accessible for student use. Program space economies are achieved through the use of a movable wall system that allows the cafetorium stage to be utilized as an additional classroom, even when the cafetorium is in use for dining. A community/parent room provides break-out space that enhances the value of the cafetorium for community activities. ■

Instructional media center



Site plan

Kindergarten classroom

Exterior

ELEMENTARY SCHOOLS
New Construction

CORBETT GRADE SCHOOL
CORBETT, OREGON
Soderstrom Architects, PC

Soderstrom Architects, PC
1200 NW Front Avenue,
Suite 410
Portland, OR 97209-2800

Bruce Barton
(503) 228-5617

Design team
Dave Soderstrom
Principal-in-Charge

Marc Bevens
Project Architect

Bruce Barton
Project Manager

Interface Engineering
Mechanical/Electrical Engineering

Walker/DiLoreto/Younie, Inc.
Structural Engineering

Leisinger Designs
Landscape Architect

W&H Pacific
Civil Engineering

James D. Graham &
Associates, Inc.
Technology Consultants

Halliday Associates
Food Service Consultant

Max Gerlt
Construction Cost Estimation

Robinson Construction
General Contractor

Client
Corbett School District 39
(503) 695-3612

Grade span
K-6

Current building capacity
425

Current building area
47,000 square feet

Total project costs
$6.12 million

Cost per square foot
$130

Space per student
111 square feet

Cost per student
$14,400

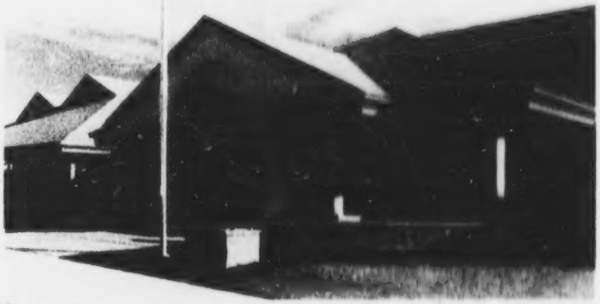
Completion date
August 1996

Situated on East Historic Columbia River Highway at the gateway to the Columbia Gorge, the new Corbett Grade School in Corbett, Ore., replaces Springdale Grade School (K-2) and the old Corbett Grade School (3-5), both of which were located as far as three miles from the campus core.

The new school is located on the same campus as the existing high school, middle school, multipurpose building, gymnasium, and bus service facilities, establishing a central axis for the Corbett community.

The Corbett School District retained Soderstrom Architects in 1994 to design a new elementary school and to assist the district with the passage of a bond measure to fund the new school. Soderstrom assisted in the site selection and designed 10,000 square feet of additions and renovations to the existing multipurpose building, providing expanded space for the elementary school cafeteria, music programs, stage facilities, and kitchen facilities. As part of the design work for the elementary school, the community/school district now has new athletic fields.

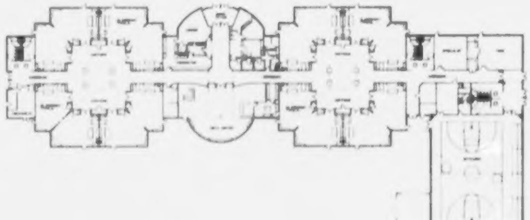
The completed 47,000-square-foot school consists of two pods of eight classrooms clustered around common activity/work centers that utilize cooperative learning techniques among all classes. The bond measure also provided for computer technology in each classroom in both old and new buildings. ■


Front entrance

Media center (library)

PHOTOS: LOREN NELSON

Sector "B" student commons


Floor plan

ELEMENTARY SCHOOLS
Renovations/Additions

B.F. DARRELL SCHOOL
DALLAS, TEXAS

Brown Reynolds Watford Architects, Inc.

Brown Reynolds Watford
3535 Travis, Suite 250
Dallas, TX 75204
Christine Davis
(214) 528-8704

Design team
Craig Reynolds, AIA
Partner-in-Charge
Mark Watford, AIA
Partner/Project Manager
Steve Elliot
Project Architect
Robert Ting
Project Designer
Lisa Lamkin, AIA
Jesses Laird

Client
Dallas Public Schools
(214) 989-8000

Grade span
Pre-K-6

Current building capacity
650

Current building area
59,500 square feet

Building area before addition/renovation
54,000 square feet

Total project costs
$2.7 million

Cost per square foot
$56

Space per student
90 square feet

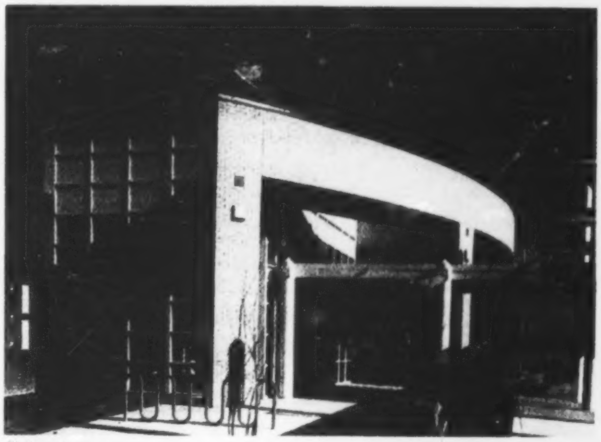
Cost per student
$4,115

Completion date
June 1996

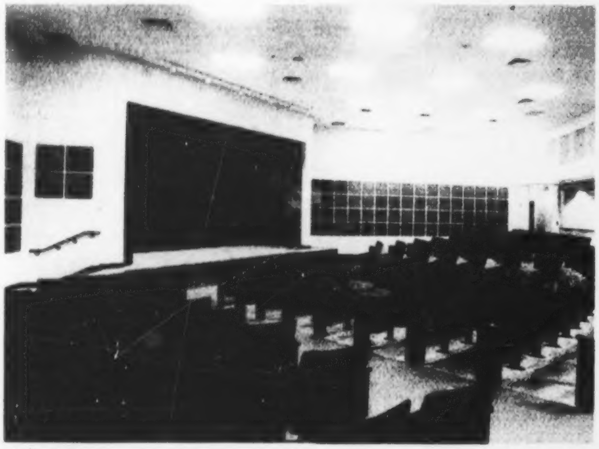
B.F. Darrell Elementary School is in southeast Dallas. The original, single story building of approximately 40,000 square feet was built in 1969 and was a modular style community building. A 14,000 square feet single story addition consisting of a gymnasium, a media center, and six classrooms was completed on the east side of the building in 1991.

In addition to the list of school needs to be addressed and resolved by the bond program, the main objective of the architectural design team was to portray a sense of permanence. A new auditorium and main entrance provided the school with a new public facade. Furthermore, a sense of arrival and departure was attained by the extension of the interior lobby to the exterior public space and vehicular drop-off. Clerestories were added to the main circulation juncture to create rhythm and repetition with a series of naturally lighted common spaces. These areas not only brighten an otherwise ordinary corridor, but also establish areas for academic exhibition. The choice of masonry construction encapsulated the existing 1969 building with a new and permanent exterior, successfully addressing the surrounding context, including the 1991 addition. ■

Site plan


Main entrance

Foyer in main entrance


Auditorium

ELEMENTARY SCHOOLS
New Construction

ELM TREE ELEMENTARY/SPRING HILL MIDDLE SCHOOL BENTONVILLE, ARKANSAS

Hight/Jackson/Associates/PA

Hight/Jackson/Associates/PA
PO Box 2053
2003 S.E. Walton Blvd.
Bentonville, AR 72712
(501) 273-5583

Design team
Ronald F. Shelby
Principal-in-Charge
Larry Lott
Project Architect
J. Mark Haguewood
Architect
James M. Gaston, Jr.
Production

Client
Bentonville School District # 6
(501) 271-1100

Grade span
K-7

Current building capacity
600 elem/600 middle

Current building area
144,000 square feet

Total project costs
$6.9 million

Cost per square foot
$48

Space per student
120 square feet

Cost per student
$5,723

Completion date
November 1995

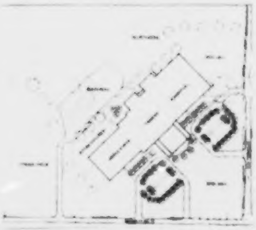
Elm Tree Elementary/Spring Hill Middle School in Bentonville, Ark., cost $47.69 per square foot to build—including sitework. Two separate schools coexist in one structure and save money by sharing library, kitchen, and food service areas. Each school operates independently with its own entrances, offices, classrooms, parking lot, and traffic flow. By opening the folding wall between the schools, the large commons area serves community groups and collective events.

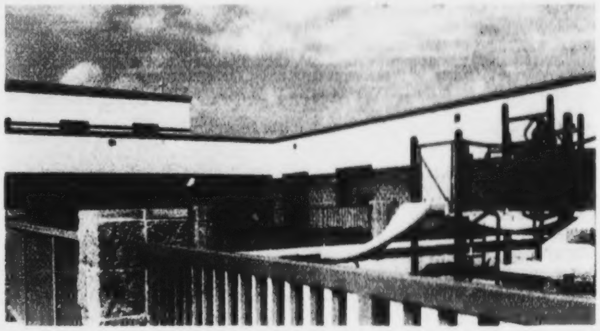
Constructed of masonry veneer over structural steel framing and metal stud walls, the school also has a complete fire-suppression sprinkler system. Cost-saving assemblies, such as pre-finished gypsum board walls, helped pay for many amenities not normally found in this type facility. Skylights serve interior classrooms and circulation spaces; corridors and classrooms are fully carpeted; the commons floor is low-maintenance terrazzo. In addition, the building has been cabled for computers in every classroom, with extensive conduit ready for 21st-century communications technology.

Spring Hill Middle School (grades 6 and 7) features a performance stage; vocal, instrumental music, computer rooms; and a complete gymnasium with locker room facilities. Elm Tree Elementary School (grades K-5) features a computer lab and a special physical education play space. An eighth-grade wing may be constructed at a future date which will complete the facility as presently planned. ■

Corridor

Commons


Site plan


Play yard

ELEMENTARY SCHOOLS
Renovations/Additions

DOWS LANE ELEMENTARY SCHOOL IRVINGTON, NEW YORK

Peter Gisolfi Associates

Peter Gisolfi Associates
566 Warburton Avenue
Hastings, NY 10706

Margery Marks
(914) 478-3677

Design team
Peter Gisolfi, AIA, ASLA
Principal /Design

Christopher Wadsworth, AIA
Principal/Production

Michael Tribe, RA
Project Manager

Debra Sukupa
Architect/Interiors

Iwana Rainer, RA, ASLA
Landscape Architect

Goldman Copeland Associates, PC
Mechanical Engineers

Robert Silman Associates, PC
Structural Engineers

John Meyer Consulting
Site Engineers

J. Michael Orifici & Associates, Inc.
Construction Manager

Client
Irvington Union Free School District
(914) 591-8500

Grade span
K-5

Current building capacity
850

Current building area
83,100 square feet

Building area before addition/renovation
55,100 square feet

Total project costs
$3.3 million

Cost per square foot
$118

Space per student
70 square feet

Cost per student
$8,270

Completion date
September 1995

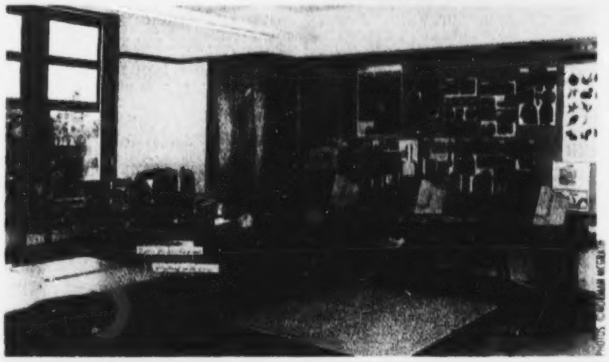
The new addition to the Dows Lane Elementary School in Irvington, N.Y., unifies two earlier sections of the school and enhances the original design themes. Peter Gisolfi Associates of Hastings-On-Hudson, N.Y., architects for the $3.3 million award-winning addition, have designed a three-story, 28,000-square-foot structure that successfully bridges the school's architectural history, enlarging and updating the institution to accommodate the community's growing student population.

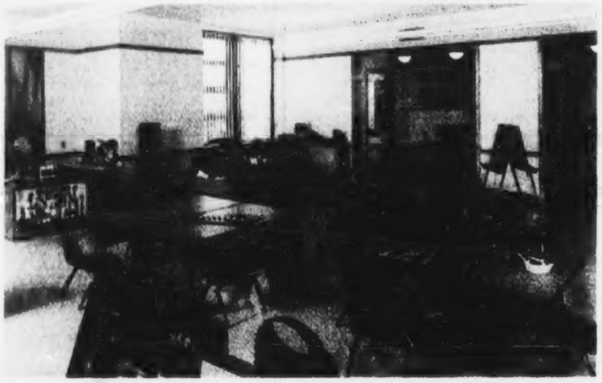
The existing 50,000-square-foot factory-style school building, built in 1955, was joined by a small open-classroom wing in 1970. Gisolfi's new addition adds a common entry for all three wings, borrows horizontal motifs from the original building, and matches brick color and horizontal window banding. The new addition is distinctive and contemporary, yet it is a logical, comfortable part of the total school building.

In addition to creating a structure fully compatible with existing styles, the design of the addition provides a durable environment scaled to the needs and sight lines of children. Built-in furniture, plumbing fixtures, cubbies, and work counters are all of appropriate size for children. The horizontal decorative motif, carried throughout the corridors and classrooms, organizes all the display surfaces and is scaled to a child's-eye view.

The design enhances a sense of grade-level identity. On the first floor, the kindergarten classes are grouped around the kindergarten display areas. On the second floor, fourth-grade classrooms and locker areas open off the fourth-grade commons.

New east entrance

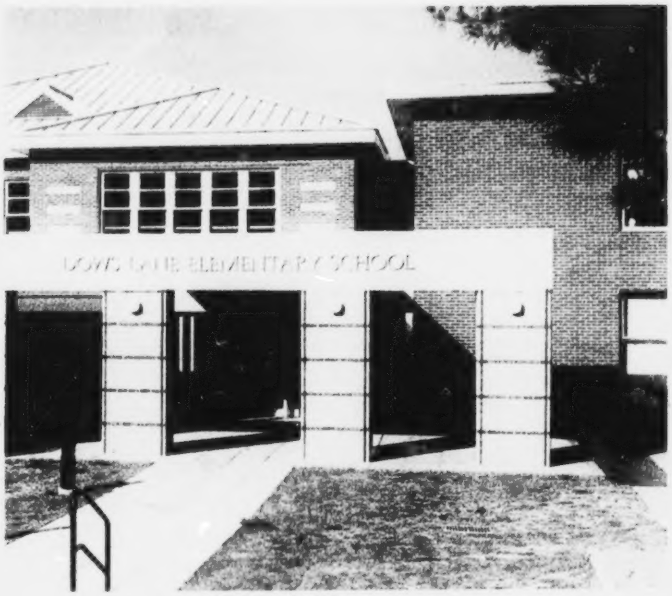

Fourth grade classroom


Kindergarten classroom

The building has a steel frame, and is built of durable, low-maintenance materials to survive use by many generations of children. It has concrete floor slabs, terrazzo stairs and landings, glazed brick stair interiors, and ceramic tile corridors.

Located in a residential area with a spectacular view of the Hudson River, the building was enlarged without negative impact on the neighborhood. The addition was designed to use the natural

Site plan

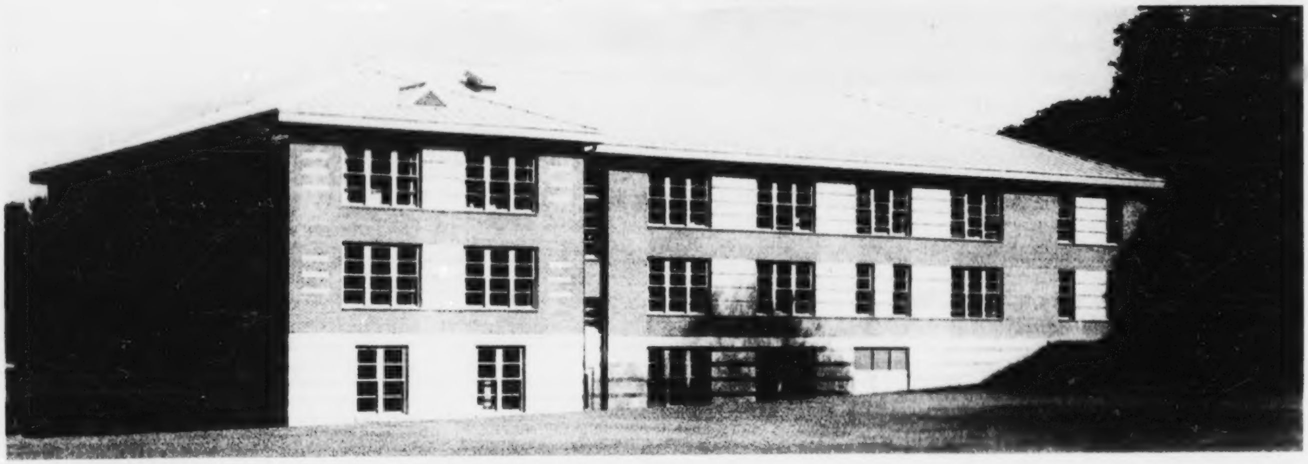


slope of the land so its three-story height would be level with the original two-story structure. No one's view of the Hudson has been spoiled.

The addition provides 18 instructional spaces. A large multipurpose room on the lower level is a community meeting space.

The American Institute of Architects Westchester/Mid-Hudson Chapter has honored the addition with its Community Design Award Citation for "architectural excellence which enhances the physical environment of the community and consequently the lifestyle of its inhabitants." ■

Fire stairs



Addition exterior

ELEMENTARY SCHOOLS
Remodeling/Additions

FORT HOWARD ELEMENTARY SCHOOL GREEN BAY, WISCONSIN

Architects Group, Ltd.

Architects Group, Ltd.
1825 South Webster Avenue
Green Bay, WI 54301

Louis J. Barone, FARA, or
Michael J. Stangel, AIA
(414) 432-1232

Design team
Louis J. Barone, FARA
Project Director

Michael J. Stangel, AIA
Project Architect

Darg + Associates
Structural Engineers

Bert Fredericksen
HVAC

Muermann Engineers
Electrical Engineers

Client
Green Bay Area Public Schools
(414) 448-2101

Grade span
K-5

Current building capacity
400

Current building area
62,087 square feet

Building area before addition/renovation
29,043 square feet

Total project costs
$2.53 million

Cost per square foot
$57

Space per student
150 square feet

Cost per student
$6,330

Completion date
August 1, 1995

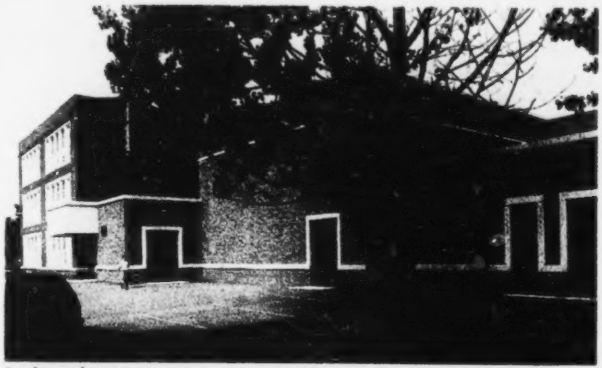
Green Bay's Fort Howard Elementary School was built in 1930. More than 60 years later, the building was renovated and expanded in a recent project by Architects Group Limited. The original 29,043-square-foot building was updated and a 33,044-square-foot addition was constructed.

The $2.5 million project blended the addition design with the original three-story building. Steps were taken to make sure the new brick matched the brick in the old building. Limestone was used in the same manner as on the original building.

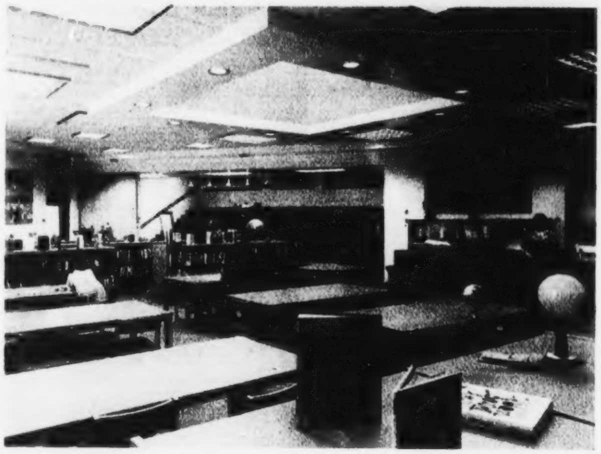
Work began in April 1994 and was completed in August 1995. The two-story addition included first floor administration offices, an instructional media center or library including a computer room and story-telling area, gymnasium, restrooms, music room, and two classrooms. The second floor included seven classrooms and an art room.

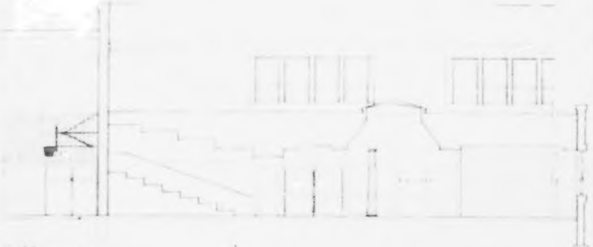
Renovations to the existing building's second and third floor classrooms included new flooring, acoustical tile ceilings, new lighting and plaster wall patching and painting. The old library was converted into a parent resource room and the new community clinic satellite health office. The kindergarten room was enlarged and the old gym was converted to a commons. The existing gym wood floor and walls were refinished.

Parking was expanded as well as the playground in a joint venture between the City Parks Department and the Green Bay Schools. Nine dilapidated houses were razed to accommodate the expansion. ■


Southeast elevation

Lobby with library to right


Story-telling area


Building section

ELEMENTARY SCHOOLS
Remodeling/Additions

GREEN PARK ELEMENTARY SCHOOL WALLA WALLA, WASHINGTON

RFBA

RFBA
1001 6th Street, P.O. Box 10
Clarkston, WA 99403

Robert F. Broyles
(509) 758-9894

Design team
Robert F. Broyles
Principal

Michael G. Shult
Design/Project Architect

Walt Huffman
Construction Documents

Ron Labar
Construction Documents

Suden, Golden & Guest
Structural Engineers

Electrical Consultants, Inc.
Electrical Engineers

L & S Engineering
Mechanical Engineers

George E. Bundy & Associates
Food Service

Client
Walla Walla School
District #140
(509) 527-3000

Grade span
Elementary

Current building capacity
685

Current building area
69,679 square feet

Building area before addition/renovation
24,900 square feet

Total project costs
$6.77 million

Cost per square foot
$97

Space per student
107 square feet

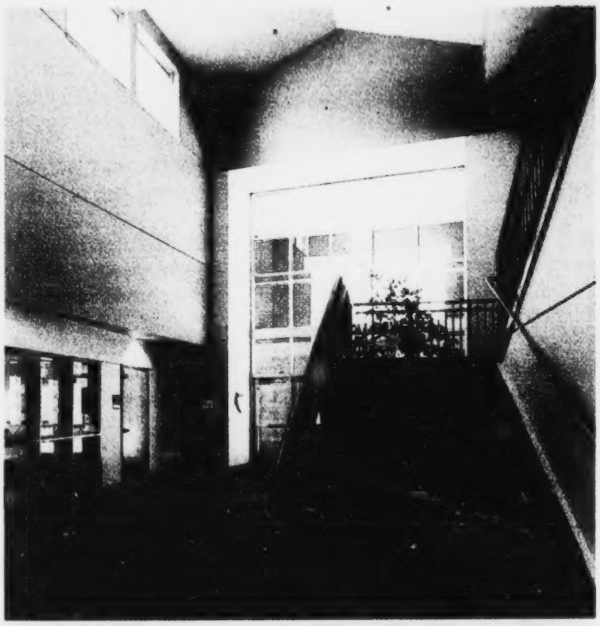
Cost per student
$1,042

Completion date
May 1996

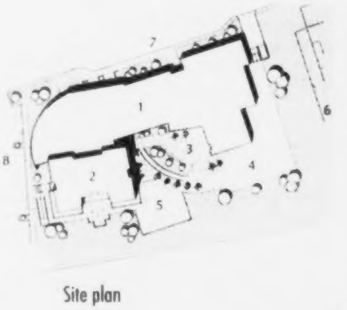
This project involved the restoration/modernization of the deteriorated original 1908 elementary school, the removal of a 1950s annex, and the construction of a new 45,000-square-foot two-story addition.

The objective of the project was to develop a contextual addition to the historic 1908 elementary school while meeting modern educational requirements. The addition was to accommodate 16 new classrooms, new administrative space to replace the annex, and a library, gymnasium, and cafeteria—while integrating with the original elementary school. The administrative space and library were placed at the new entry, creating a hub and connecting the new classroom wing with the existing school. A high-volume axis was created in the main entry corridor with a cathedral ceiling, clerestory windows, and second-story light wells to visually connect the new entry to the existing elementary school from both the exterior and interior. Classroom layouts in the new wing are arranged around various commons areas which were developed to help bring daylight into the corridors while providing space for future classrooms.

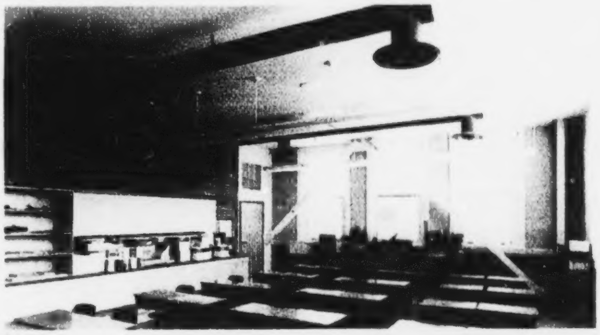
The addition and modernization of the Green Park Elementary School provides the community with an advanced educational facility while encompassing the esthetic values of the original school within the context of its historic surroundings. ■


Interior

Exterior



Site plan


Interior

ELEMENTARY SCHOOLS
New Construction

JEFFREYS GROVE ELEMENTARY SCHOOL RALEIGH, NORTH CAROLINA

Boney Architects, Inc.

Boney Architects, Inc.
5511 Capital Center Drive,
Suite 310
Raleigh, NC 27606-3393

Katherine N. Russ, AIA
(919) 851-9393

Design team
Katherine N. Russ, AIA
Project Architect

Patricia A. Fisher, Assoc. AIA
Interiors/Design Team

Dewberry & Davis
Mechanical/Plumbing

Atlantec Engineers
Electrical Engineer

Morrison & Sullivan Engineers
Structural Engineer

W.K. Dickson
Civil Engineer

George Finch, ASLA
Landscape

Client
Wake County Schools
(919) 850-1600

Grade span
Pre-K-5

Current building capacity
620

Current building area
72,000 square feet

Total project costs
$6 million

Cost per square foot
$83

Space per student
116 square feet

Cost per student
$9,677

Completion date
August 1996

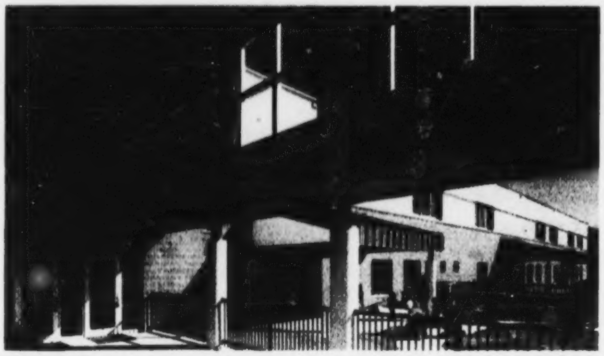
The new 600-student Jeffreys Grove Elementary School replaces a 40-year-old facility on an urban site in fast-growing Raleigh, North Carolina. The limited site (8 acres) necessitated the design of a two-story facility to allow adequate area for playgrounds and parking. An additional one-acre parcel of land was purchased from a neighboring church for a shared-use parking lot with the church.

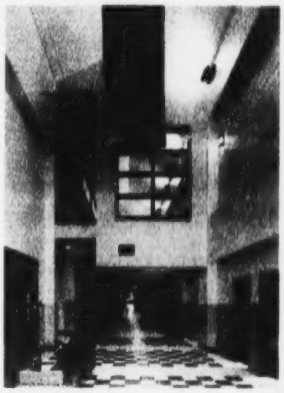
The building is an L-shaped design that separates classrooms by age level. Pre-kindergarten, kindergarten, and first grade classrooms are on the lower level while upper grades are on the second level. The administrative suite, playroom, cafeteria, and media center all flank a central "street" which features overlooks from the second floor above. Natural light is brought in from high clerestory windows and gives an atrium-like feeling to both levels.

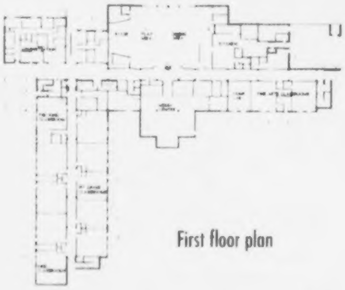
Exterior building materials and massing express the various functions of the design. The L-shaped design creates an enclosure for the playground and brings an effective economy and simplicity to the project. ■

Media center

Front entrance


Covered entry


Entry lobby


First floor plan

ELEMENTARY SCHOOLS
Significant Project in Progress

LOUISE WOLFF KAHN SCHOOL DALLAS, TEXAS

Garza/BRW Architects

Garza/BRW
3535 Travis Street, Suite 250
Dallas, TX 75204

Christine Davis
(214) 528-8704

Design team
Craig Reynolds, AIA
Principal

Javier Lucio
Principal

Lisa Lamkin, AIA
Project Manager

David Pierce, AIA
Project Architect/Project Designer

Robert Ting
Doug Hankins
Jesses Laird
Michael Masengarb

Client
Dallas Public Schools
(214) 989-8000

Grade span
Pre-K-6

Current building capacity
800

Current building area
73,000 square feet

Total project costs
$6.9 million

Cost per square foot
$94

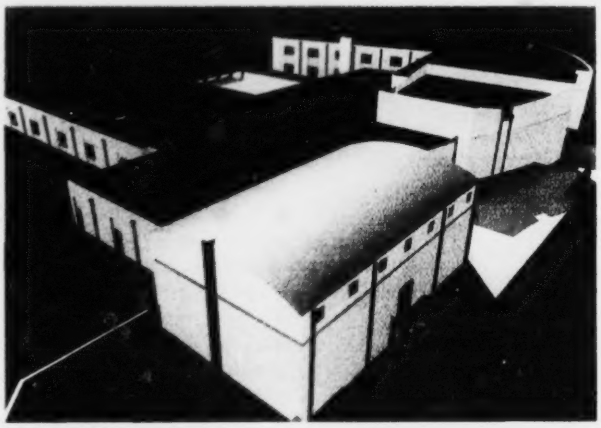
Space per student
91 square feet

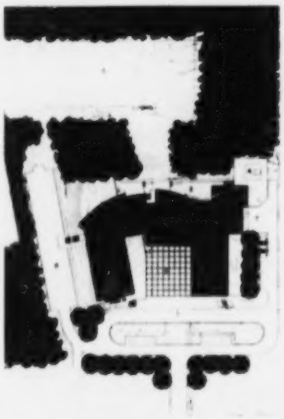
Cost per student
$8,586

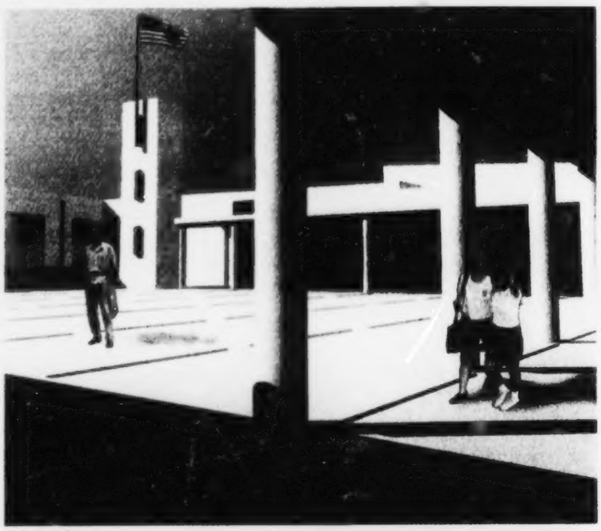
Completion date
July 1997

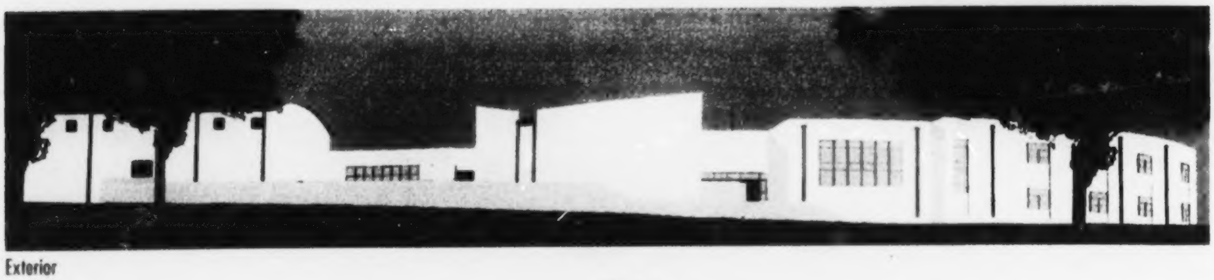
Louise Wolff Kahn School will be a new Dallas Public Schools' elementary facility. It is projected to serve 800 students and 75 faculty members, as well as a broad cross-section of the north Oak Cliff community of Dallas. Garza/BRW worked with a diverse community team that included parents, faculty, neighbors, city and school officials, local arts leaders, and the Louise Wolff Kahn Foundation in order to design a facility serving the many needs of both education and the community.

Not only was the school conceived as a place for education, but also as a place for community gatherings. A public plaza, the outdoor terrace, a performance hall, and a natural amphitheater built into the dramatic sloping site are all factors that contribute to the building's role as a public place which emphasizes the importance of education and culture. ■


Aerial view of gym


Site plan


Courtyard


Exterior

ELEMENTARY SCHOOLS
New Construction

DR. MARTIN LUTHER KING, JR. ELEMENTARY SCHOOL SANTA ANA, CALIFORNIA

Thomas H. Blurock Architects

Thomas H. Blurock Architects
720 W. 17th Street, Suite C
Costa Mesa, CA 92627

Kevin S. Fleming
(714) 646-9373

Design team
Thomas H. Blurock
Principal-in-Charge

Scott S. Dennis
Project Architect

Esther L. Ungead
Thomas R. Moore
Steven A. Dangermond
James F. Devlin

Client
Santa Ana Unified
School District
(714) 480-5355 or
(714) 480-5357

Grade span
K-5

Current building capacity
600

Current building area
35,413 square feet

Total project costs
$4.1 million

Cost per square foot
$116

Space per student
59 square feet

Cost per student
$6,833

Completion date
April 1996

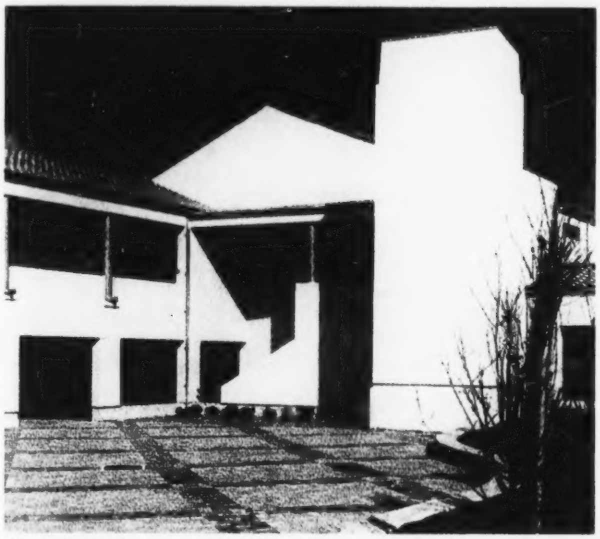
Dr. Martin Luther King, Jr. Elementary School is a 19 classroom and two kindergarten elementary school occupying 35,413 square feet in inner-city Santa Ana.

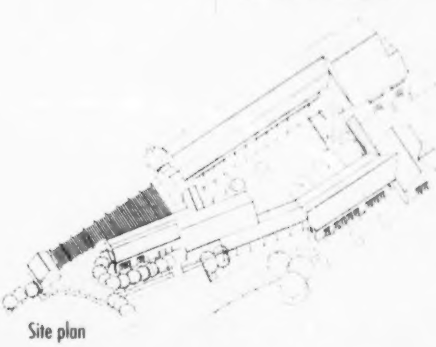
At the heart of the school is an internal courtyard around which the classrooms are grouped. In reference to California's architectural precedents in organizing buildings around a central courtyard, this gives the perception of a small community. Clustering the classrooms this way provides good security for the school and also creates a more relaxed environment than that of the urban neighborhood beyond.

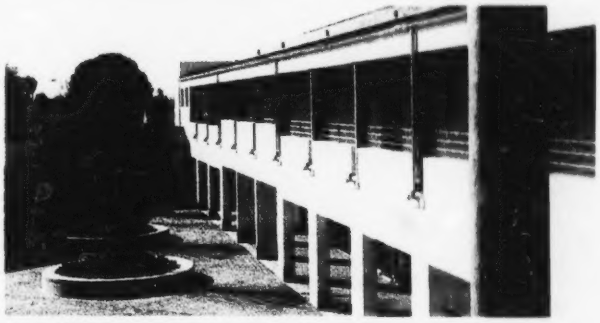
Lunch shelter detail

The court is framed by the L-shaped two-story classroom block to the north and east, terminating in an accentuated elevator/stair element fronting the courtyard and the taller volumes of the kindergarten classrooms and the multipurpose room to the south and southeast. The relative volume created by the courtyard is quite urban in scale and comfortable in perception. The court is landscaped with colored pavers and dotted with tree wells accentuating the axis from drop-off to the play fields.

Dr. Martin Luther King, Jr. Elementary School is constructed of cement plaster on stud framing, corrugated concrete roofing, panels, painted aluminum windows, painted steel doors, and galvanized railing and gutters. ■


Elevator/stair enclosure


Site plan


Courtyard

LAS 242

ELEMENTARY SCHOOLS
Significant Project in Progress

KINLICHEE BOARDING SCHOOL KINLICHEE, ARIZONA

Holleyman Associates

Holleyman Associates
2310 SW 89th, Suite F
Oklahoma City, OK 73159

Mike Holleyman, AIA
(405) 691-0039

Design team
Mike Holleyman, AIA
Principal-in-Charge/Project Designer

Michael Abla, AIA
Project Manager

McMininy & Associates
Structural Engineers

Design Engineers, Inc.
Civil Engineers

EE Systems Engineering, Inc.
Electrical/Mechanical Engineers

Client
Bureau of Indian Affairs
(505) 766-2821

Grade span
K-6

Current building capacity
178

Current building area
33,650 square feet

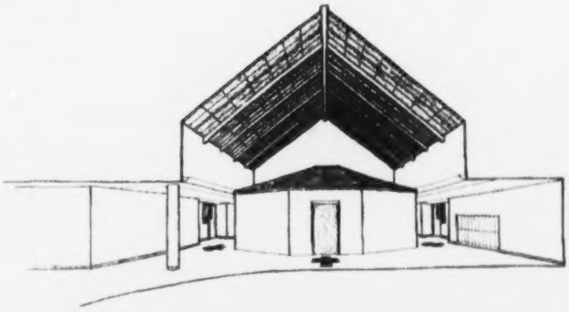
Space per student
189 square feet

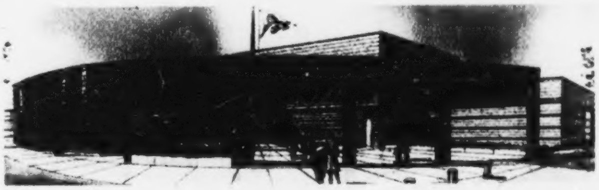
Kinlichee Boarding School (a campus for Native American children in grades K through 6) faced serious problems with the existing education facilities for their elementary age children. The existing building was overcrowded, structurally unsafe, had several life-safety code violations, and was located in a flood-prone area.

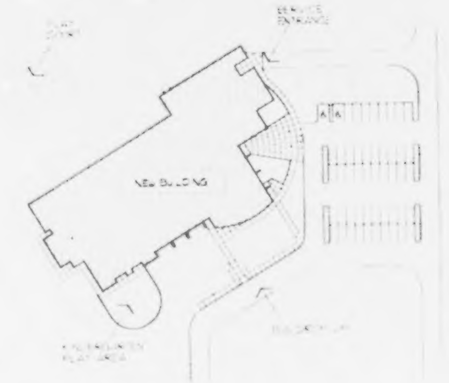
As well as providing design services, Holleyman Associates developed the program of requirements for this new school. This program called for classroom space for grades K through 6, a special-education classroom, computer laboratory, miscellaneous classrooms, library/media center, clinic, multipurpose room with full kitchen, and administrative offices.

Cultural elements played a major role in the design of this building. The centerpiece of this facility is a Cultural Classroom that is symbolic of a traditional Navajo structure—a "hogan." This eight-sided room is centrally located below a glazed ceiling to allow for natural light to flood this area. A red glazed veneer is used at the exterior and at interior corridors since "Kinlichee" means "Red House" in Navajo. Also, the main entrance and entry to the hogan face east due to the tradition of orienting entries of Navajo structures towards the "rising sun." Throughout the school's corridors, a Navajo rug pattern is repeated on the floor by using multi-colored tiles.

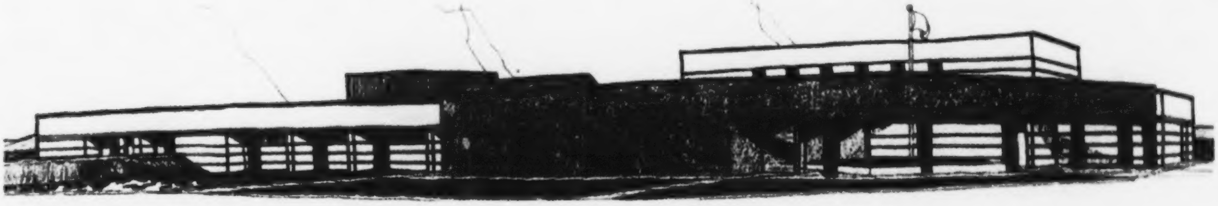
The addition of this new elementary school will provide a source of pride for the Kinlichee community and the students. ■


Interior at Hogan


Main entrance



Site plan


Exterior

BEST COPY AVAILABLE 243

ELEMENTARY SCHOOLS
New Construction

LONG BEACH INTERNATIONAL ELEMENTARY SCHOOL LONG BEACH, CALIFORNIA

Thomas Blurock Architects/Morphosis

Thomas Blurock Architects/Morphosis
720 W. 17th Street, Suite C
Costa Mesa, CA 92627

Kevin S. Fleming
(714) 646-9373

Design team
Thomas H. Blurock
Principal

Thom Mayne
Principal

Barbara Helton-Berg
Project Manager

James R. Moore
Project Architect

Kim Groves
Project Designer

Silvia Kuhle
Lis Zuloaga
Jose Valentin

Client
Long Beach Unified School District
(310) 595-9574

Grade span
K-5

Current building capacity
1,200

Current building area
79,605 square feet

Total project costs
$11. 4 million

Cost per square foot
$143

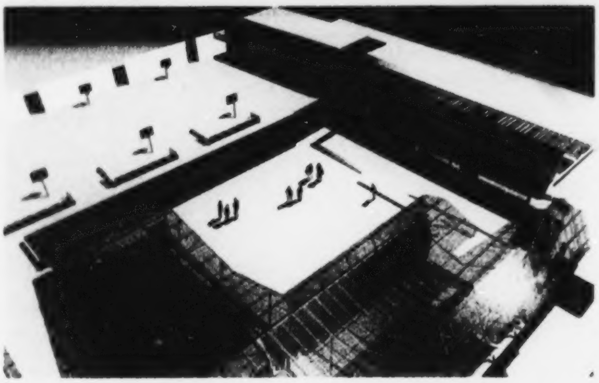
Space per student
66 square feet

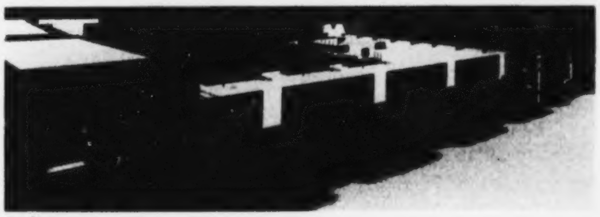
Cost per student
$9,500

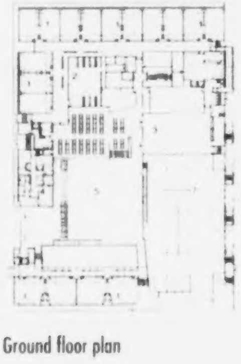
Pressured by an expanding student population and the need to move the school from City to school district property, Long Beach Unified School District decided to relocate the existing temporary facility for 730 students to a permanent facility for 1,200 students on a two-acre parking lot in downtown Long Beach. The constraints of the tight urban site and the program challenged the traditional notions of how elementary schools are made. It led to a unique solution that maximizes play area, addresses concerns of security, and responds to both the urban and residential edges. It led to a solution that identifies the opportunities and celebrates them.

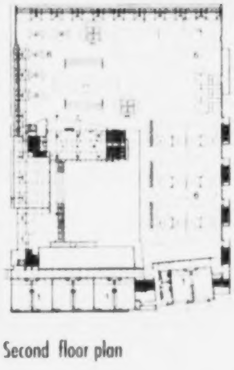
The 34-classroom school consists of a one-story concrete structure that houses K-2 classrooms, administration, the library, multipurpose room, kitchen, and secured staff parking, and a three-story steel framed building housing classrooms for grades 3 through 5. The roof of the concrete structure is a playfield. Stringent security and safety requirements called for a perimeter enclosure around the playfield, which is 12 feet above grade. To avoid what might be prison-like, the design for the fence was developed and expanded to become a "sheltered enclosure" and includes bleachers and an integrated perforated aluminum screen for shade, supported by a child's scale, playful steel tube structure. ■

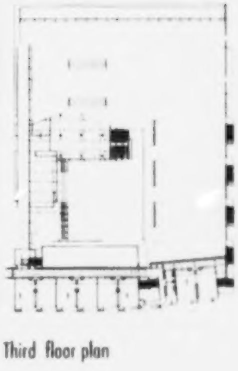
Exterior


Exterior

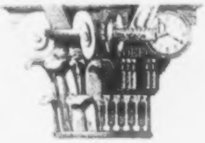

Roof


Ground floor plan


Second floor plan


Third floor plan

ELEMENTARY SCHOOLS
New Construction



MALONEY MAGNET SCHOOL WATERBURY, CONNECTICUT

Fletcher Thompson, Inc.

Fletcher Thompson, Inc.
Two Lafayette Square
Bridgeport, CT 06604

James A. Beaudin, AIA
(203) 366-5441

Design team
James A. Beaudin, AIA
Principal-in-Charge

Jeffrey A. Sells, AIA
Senior Design Architect

Chester A. Salit, AIA
Project Manager

Client
Waterbury Board of Education
(203) 574-8004

Grade span
Pre-K-5

Current building capacity
600

Current building area
94,000 square feet

Total project costs
$13 million

Cost per square foot
$138

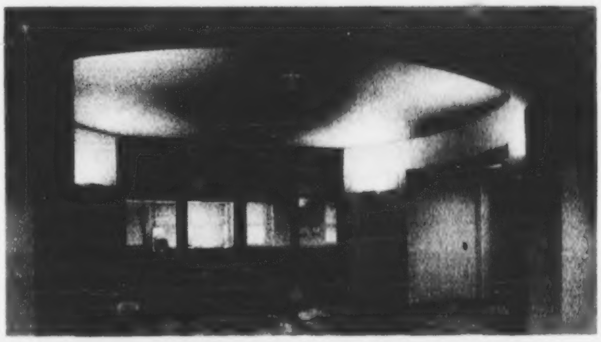
Space per student
157 square feet

Cost per student
$21,670

Completion date
August 1996

This new magnet school, in replacing a nearby facility long outmoded and overcrowded, addresses a statewide mandate for greater social and ethnic diversity. The educational "magnets" offered are several, including: bilingual instruction, science and technology, hearing-impaired instruction and evaluation, and a comprehensive pre-kindergarten program that is a virtual "school within a school."

In addition to educational functions, the new specialized core facilities—such as the gymnasium, auditorium, and media center—provide desirable venues for local after-hours activities, thus fostering a sense of community.

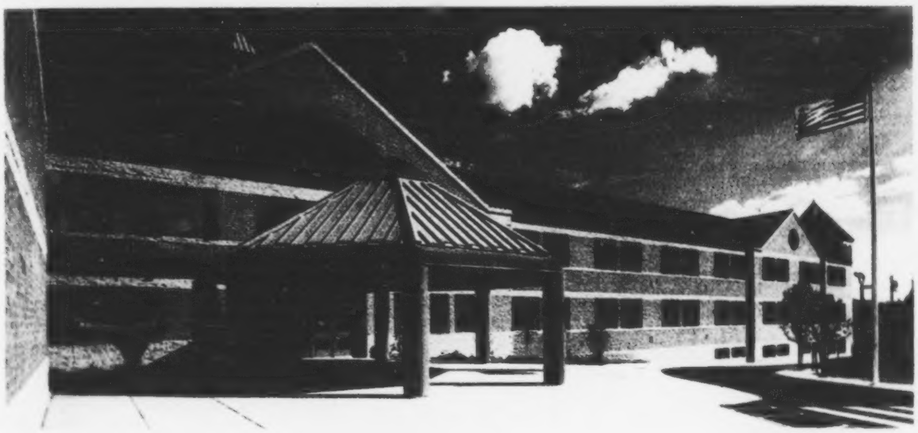


Interior

Gymnasium

The selected site, a narrow sloping 2.7 acre parcel surrounded by city streets, presented unique design challenges as well as benefits in that it occupies a high promontory and is readily visible from two major nearby highways. Thus, the new facility serves as a positive and dramatic expression of Waterbury's revitalization. The new building incorporates large gymnasium and cafeteria areas at the north to buffer highway traffic noise and provides a quiet, south-facing alcove at the front door and main bus drop area.

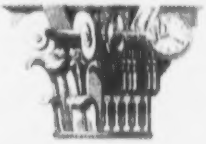
Traditional elements and materials—such as the exterior masonry, sloping metal roof, and cupola—help the building recall the architecture of the original Maloney School, as well as that of much of Waterbury's architectural past. Yet other characteristics give it a distinctly modern feeling that this is a building for the community, that promotes state-of-the-art educational programs. Those characteristics include the streamlined forms and bright colors, seismically designed structural steel frame, integrated communications and facility-wide computer network systems, advanced variable air volume air conditioning, integrated fire detection and sprinkler systems, acoustically sensitive materials and design, and supporting community activity rooms, auditorium, and media center. ■



Exterior

Site plan

ELEMENTARY SCHOOLS
New Construction



LONOKE ELEMENTARY SCHOOL
LONOKE, ARKANSAS

Brooks Jackson Architects, Inc.

Brooks Jackson Architects, Inc.
2228 Cottondale Lane,
Suite 320
Little Rock, AR 72202
Brooks Jackson, AIA, CSI
(501) 664-8700

Design team
Brooks Jackson, AIA, CSI
Principal Architect
H.F. "Bunny" Brown, IV
Project Manager
Wallace E. Wilkins
Construction Documents
Kenneth G. King
Construction Documents

Client
Lonoke School District
(501) 676-2042

Grade span
3-5

Current building capacity
600

Current building area
68,087 square feet

Total project costs
$3.8 million

Cost per square foot
$56

Space per student
114 square feet

Cost per student
$6,333

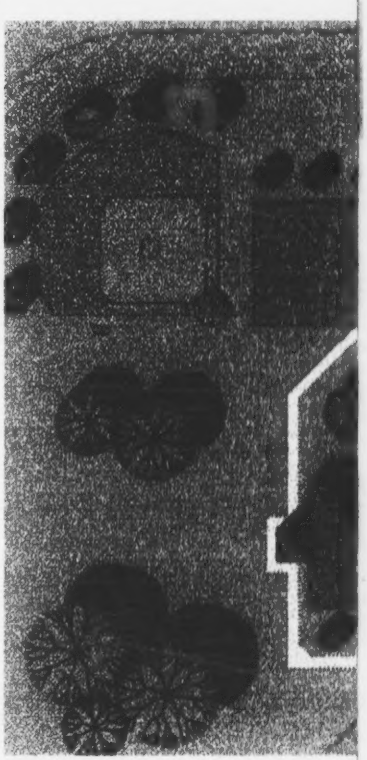
Completion date
August 1997

Lonoke, Ark., is a small but rapidly growing community outside Little Rock. The Lonoke School District, realizing the current growth of its community and preparing for the future, made the decision to construct a new 600-student elementary school.

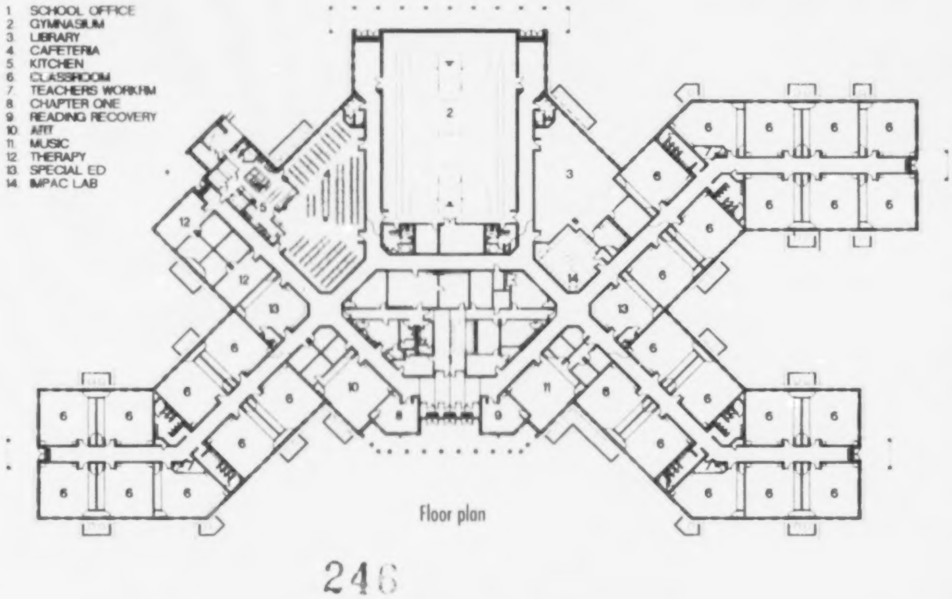
The new Lonoke Elementary School will accommodate third, fourth, and fifth graders, each grade level requiring nine classrooms. Program requirements led the design to incorporate three classroom wings, separating each grade and also helping break down the mass and scale of the building.

The large number of classrooms required for each wing posed two challenges. The first challenge was to reduce the distance for teachers to get to a work area for copying, supplies, etc., during or between classes. To overcome this challenge, each wing was provided with a small teacher workroom, equipped with toilet facilities, copier, and space for supplies.

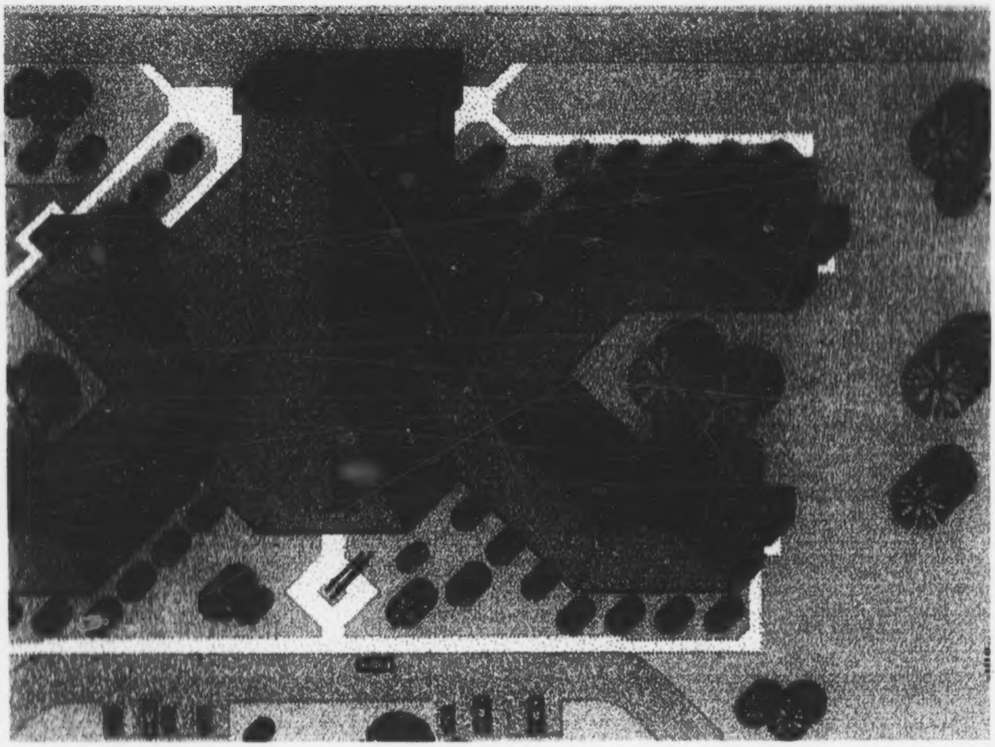
Second, a lengthened corridor can be very intimidating for third, fourth, and fifth graders. Therefore, each wing was bent to shorten the visual distance. This separation was advantageous to the students and teachers during class time, but a school must also have integration and community. To encourage this community, the administration was placed centrally and all specialty/common-use spaces—e.g., special education, Chapter One, reading recovery, art, music, impact lab, library, and cafeteria—surrounded the administration, forcing the traffic flow to circle the core. To further encourage this centralized



Site plan



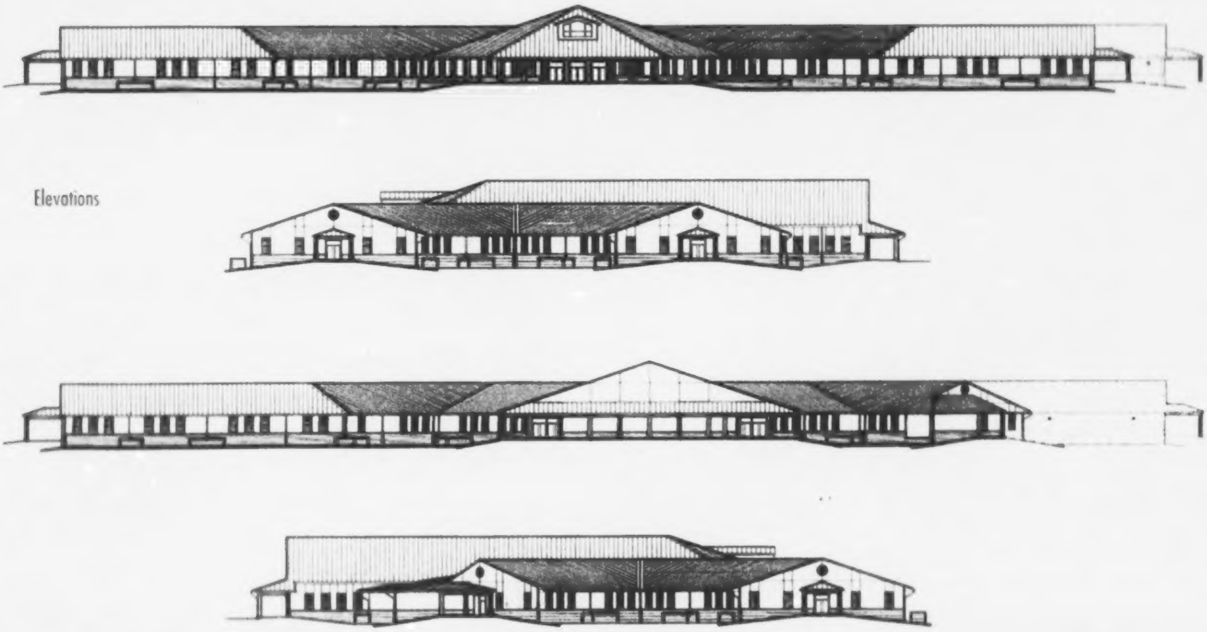
Floor plan



circulation, varying volumes and a dormer with clerestory natural light were added to create exciting transitions through the spaces.

The building was designed with an acoustically sensitive, full-service kitchen/cafeteria and a high school-size basketball court. These spaces are located around the central circulation but also have their own entry and can be closed off from the rest of the school to accommodate community or other activities during non-school hours.

The school site provides two primary means of access and vehicular egress. The front entry provides for parent or car drop-off, and the rear accommodates the bus drop-off. This separation of bus and car traffic prevents cross-traffic conflicts and eventually leads to integration of students within the central core, promoting community. ■



Elevations

ELEMENTARY SCHOOLS
Renovations/Additions

MONROE ELEMENTARY NEW RICHMOND, OHIO

Steed Hammond Paul Inc.

Steed Hammond Paul Inc.
1014 Vine Street, Suite 2100
Cincinnati, OH 45202

Jim Schriefer, AIA
(513) 381-2112

Design team
Dale Heidotting, AIA
Principal-in-Charge

Jim Schriefer, AIA
Project Architect

Patti Sumner
Interior Designer

Client
New Richmond Exempted Village School District
(513) 553-2616

Grade span
Pre-School-6

Current building capacity
800

Current building area
82,945square feet

Building area before addition/renovation
57,691square feet

Total project costs
$5.3 million

Cost per square foot
$64

Space per student
104 square feet

Cost per student
$ 6,620

Completion date
September 1995

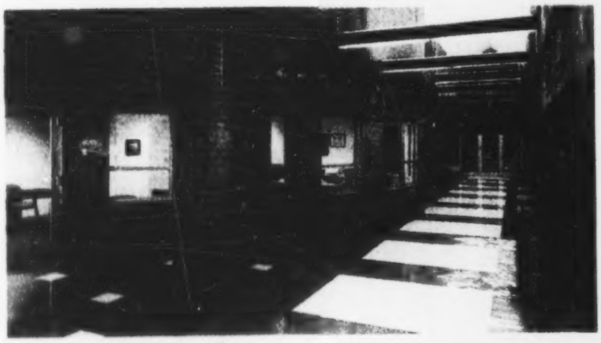
Monroe Elementary School had gone through several additions in its 30-year history—producing a design mishmash and creating numerous level changes that hampered student movement. Looking to provide needed educational space, resolve accessibility issues, and enhance community use and involvement, Steed Hammond Paul designed a comprehensive renovation program that entailed demolishing the core of the building, from which two classroom wings extend, and building a new two-story structure in its place. The project was completed in four phases over two years to keep the building operational during construction.

The new design gives the school a pleasing, cohesive look through the unification of brick, window style, and building height. Patterns in the brick help unify site lines. Energy efficiency is enhanced with new windows and increased wall insulation. New interior casework and finishes make the existing classrooms look brand new while also improving storage.

Safety in and around the building, especially in the parking areas, was another concern addressed. The new design not only separates bus and carpool traffic, but gives the administrative office a clear view of both entrances.

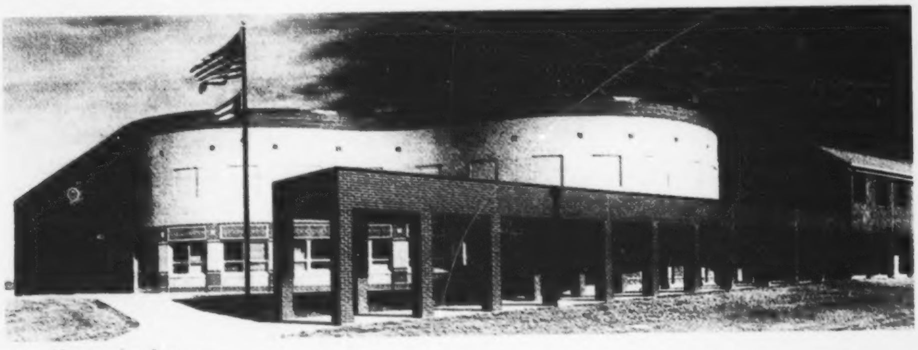
Having its own separate entrance, the oversized gymnasium can be used for evening activities while the rest of the building remains secure. The use of wood floors enhances the gym's suitability for community use. The learning center features adult-sized furniture to expand the room's use for teacher meetings or community groups.

The new, inviting appearance of the school offers one other benefit: a noticeable increase in parental visits and participation. ■


New entry and administrative offices

Learning center/corner story room

Site plan


New addition and student entry

ELEMENTARY SCHOOLS
New Construction

OCONTO FALLS ELEMENTARY SCHOOL
OCONTO FALLS, WISCONSIN

the stubenrauch architects, inc.

the stubenrauch architects, inc.
708 Erie Avenue
Sheboygan, WI 53081
James A. Sutton, AIA
(414) 458-3526

Design team
Paul F. Dinkins, AIA, NSPE
Principal-in-Charge
Robert Lodel, AIA
Project Architect
Rober Heimerl, AIA
Project Designer
Jim Kozak
Field Observer

Client
Oconto Falls Area Schools
(414) 846-4471

Grade span
K-5

Current building capacity
600

Current building area
65,775 square feet

Total project costs
$4.04 million

Cost per square foot
$61

Space per student
109 square feet

Cost per student
$6,726

Completion date
July 1996

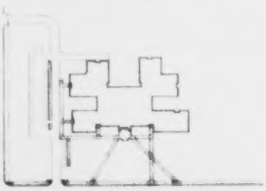
The Oconto Falls Elementary School is a single-story, four-track school. The floor plan of this K-5 facility is composed of classroom wings for each grade level with common and assembly areas organized in the central core. Natural lighting provided by clerestory windows lends a warm and inviting atmosphere in the main entrance lobby.

The Instructional Media Center, located directly off the main lobby, provides convenient access for both students and the community. It features a stepped reading and student presentation area. A 25-station computer lab is located adjacent to it.

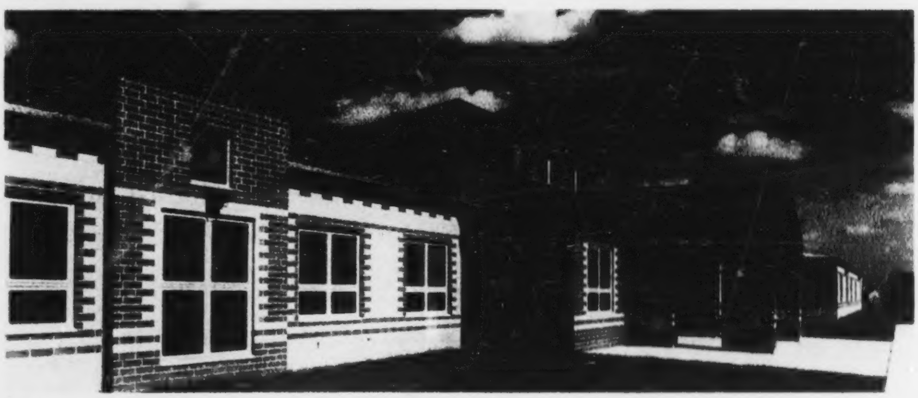
A large gymnasium serves as a multiuse space. It can be divided into two areas by a divider curtain. Folding bleacher seating was provided for 288 people.

The school's exterior brick color and pattern, along with the metal roof forms, are reminiscent of the vernacular architecture of the Oconto Falls area. Interior finishes are modest yet durable and easily maintained. Floor patterns and colorful paint accents add interest.

The school currently is partially air-conditioned, with the capacity to service the entire facility in the future. ■


Site plan

Corridor


Entrance

Instructional media center

ELEMENTARY SCHOOLS
New Construction

ORION OAKS ELEMENTARY SCHOOL LAKE ORION, MICHIGAN

URS Greiner, Inc.

URS Greiner, Inc
3950 Sparks Drive SE
Grand Rapids, MI 49546
Mitchell G. Watt, AIA
(616) 285-3500

Design team
Judy K. Miller, AIA
Project Manager
Kenneth M. Ruszkowski, AIA
Design Architect
Shawn Ann Stevenson, AIA
Design Architect
Jennifer Hillery-Doyle
Interior Designer
Mark E. Wrona, ASLA
Landscape Architect

Client
Lake Orion Community Schools
(248) 693-5413

Grade span
K-5

Current building capacity
630

Current building area
66,720 square feet

Total project costs
$7.1 million

Cost per square foot
$106

Space per student
106 square feet

Cost per student
$11,270

Completion date
August 1996

The new Orion Oaks Elementary School in Lake Orion, Mich., incorporates a "neighborhood" or "house-within-a-house" concept of teaching. Each neighborhood contains one classroom for each grade level, allowing for a smaller, more closely knit community within the larger school environment. Each neighborhood is staffed by one teacher per grade level; the first and second-grade teachers work together as a team, and the third, fourth, and fifth-grade teachers work together as a team. Students benefit from both grade-specific and multiage learning experiences. In many ways, Orion Oaks represents a series of one-room schoolhouses equipped with state-of-the-art technologies. This multiage learning approach incorporates a "centers-based" curriculum, where children move freely among a variety of instructional centers throughout the day. The traditional corridor is gone. The media center, the gymnasium, a multipurpose room, and enrichment spaces for science, art, and music are shared among neighborhoods. Other concepts—such as the "adult community," where all staff personnel interact within common dedicated spaces, and "community use" of facilities—have been factored into the planning.

High-volume spaces allow natural light to penetrate the classroom centers, and vibrantly hued colors balance the spaces, imparting a less intimidating scale. Each neighborhood has its own individual color scheme for identification and individuality. Basic architectural elements and shapes,

Exterior

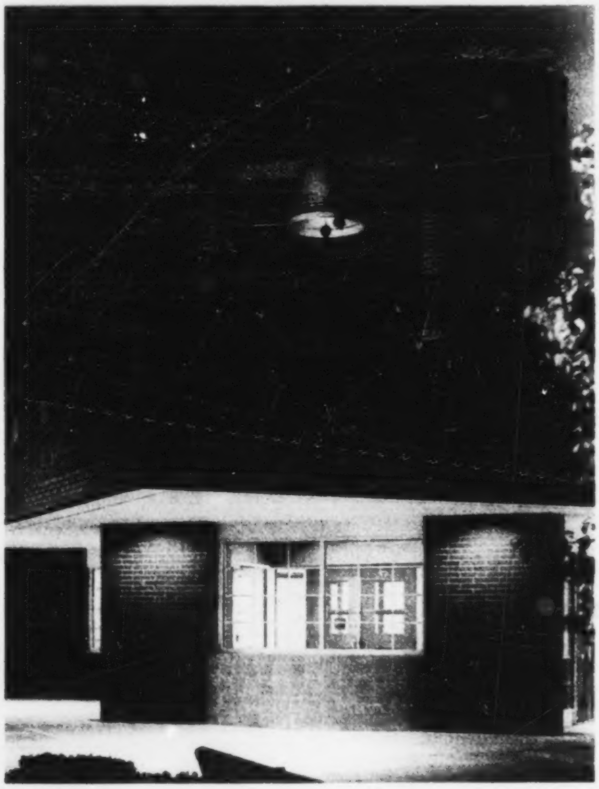
Computer lab

such as circles, squares, triangles, and columns, evoke the early concepts of education and are repeated throughout the building.

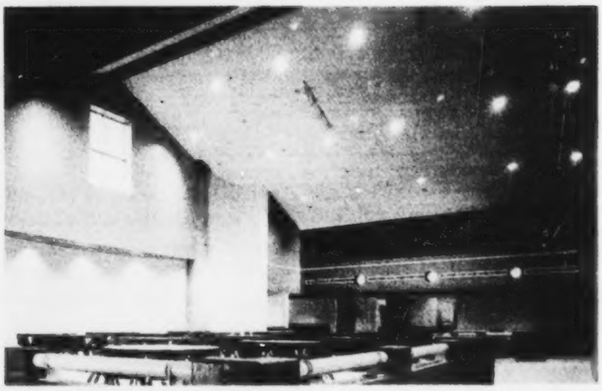
With a flexible design, the school can adapt to changing instructional needs in the future and might even be used as a traditional K-5 facility, if necessary.

This school is based on tradition, yet designed for the future. ■

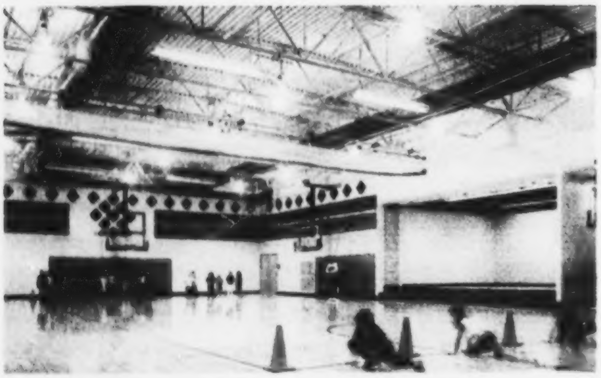
Main corridor



Scaled-down entry



Cafeteria/instruction space



Multistation gym

ELEMENTARY SCHOOLS
New Construction

OTSEGO ELEMENTARY SCHOOL OTSEGO, MINNESOTA

KKE Architects

KKE Architects
300 First Avenue North
Minneapolis, MN 55401
Ron Erickson, AIA
(612) 339-4200

Design team
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Thomas Hysell, AIA
Project Managers
John W. Gould, AIA
Project Designer
Roland W. Swenson, AIA
Roxanne DeCoster, CID
Connie S. Sutton
Douglas C. Langren, CCS

Client
Elk River Area ISD 728
(612) 241-3400

Grade span
K-6

Current building capacity
700

Current building area
86,000 square feet

Total project costs
$6.6 million

Cost per square foot
$77

Space per student
123 square feet

Cost per student
$9,428

Completion date
May 1995

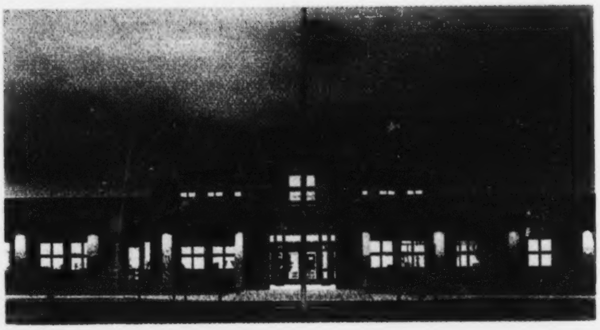
Situated on a gently rolling prairie site, this new 86,000-square-foot elementary school serves 700 students from kindergarten through sixth grade.

Classrooms are grouped in houses that surround the media center and other shared programmatic functions. The house concept gives the project the added dimension of expandibility. To provide appropriate yet flexible learning environments, which are sensitive to human scale, the classrooms for each grade level are organized around a shared resource area.

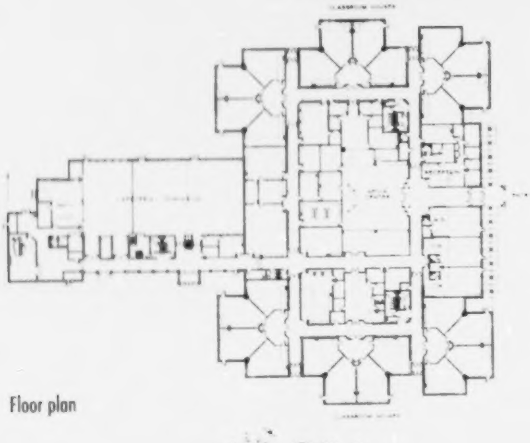
This organization creates opportunities for team teaching and other alternative education methods, as well as providing natural settings for parent conferences and individual or small group work. The architects took full advantage of color, floor patterns, and interior wall applications to cue youngsters and assist them in finding their way around their new school.

The media center anchors the plan and the building's form, thus becoming not only the actual physical center but the symbolic center of the school as well. The entry gallery space rises to clerestory windows that bring light into the center of the building during the day and emit light during the dusk and evening hours, invoking the historic image of the schoolhouse on the prairie.

The design provides for the gymnasium and multipurpose "cafetorium" to be operationally independent from the rest of the building for after-school functions and community activities. ■


Exterior

Interior lobby


Floor plan

ELEMENTARY SCHOOLS
New Construction

EDWARD J. PATTEN ELEMENTARY SCHOOL PERTH AMBOY, NEW JERSEY

Vitetta Group

Vitetta Group
642 North Broad Street
Philadelphia, PA 19130

Stephen J. Carlidge, AIA
(215) 235-3500

Design team
Stephen J. Carlidge, AIA
Principal-in-Charge

Steve Hegeman
Project Manager

Lew Myerson, AIA
Frank LoDolce, RA
Shawn Flaherty
Project Team

Richard Cheetham
Ed Carhart
Warren Reuther
Anthony Carango
Manuel Malgapo
Engineer Team

Client
Perth Amboy Board of Education
(908) 826-3360

Grade span
K-4

Current building capacity
816

Current building area
107,384 square feet

Total project costs
$12 million

Cost per square foot
$112

Space per student
131 square feet

Cost per student
$14,740

Completion date
January 1995

The new Edward J. Patten Elementary School in Perth Amboy, N.J., replaces two antiquated and obsolete school buildings in the Perth Amboy School District. Although fairly large in scale, serving 816 elementary school students, the building is designed as an assembly of smaller scale components to fit into a mature, residential neighborhood.

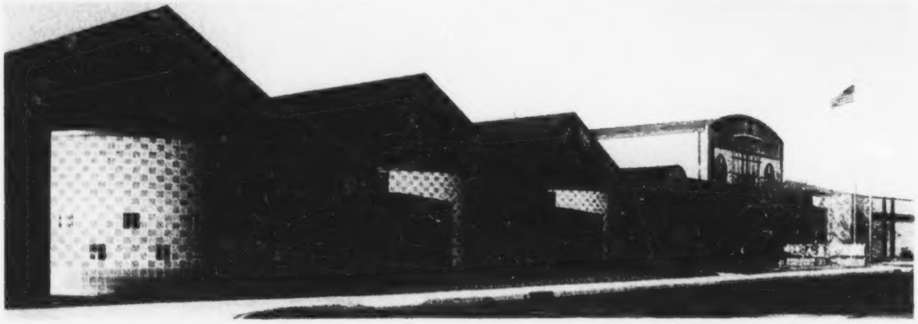
Each of the school's functional elements are expressed as distinct components, yet are tied together visually through the use of patterned masonry and nautical motifs that are of historical significance to the town. Window mullions and curtain wall panels are expressed as sail-like forms. The kindergarten classrooms at the front of the building are expressed as individual gabled "houses" of a relevant scale to first-time students. Viewed collectively, the "houses" appear as an identifiable village within the larger school community.

On the interior, skylights welcome in large amounts of natural light and playful forms, including metal screen "waves," float overhead in the library. "Lollipop" street lights in the kindergarten classrooms recall that the facility was designed for children. Efficiencies are derived from a multiuse stage that, when isolated by a movable soundproof wall system, provides additional classroom or music practice space. ■

Cafetorium

Site plan

Instructional media center


Exterior

ELEMENTARY SCHOOLS
New Construction

ARCHITECTURE AWARD WINNER

WILLIAM W. PERRY ELEMENTARY SCHOOL WAYNESBORO, VIRGINIA

Bond Comet Westmoreland + Hiner Architects

Bond Comet Westmoreland + Hiner Architects
207 W. Broad Street
Richmond, VA 23220
Joanne Huebner
(804) 788-4774

Design team
Douglas D. Westmoreland, AIA
Principal-in-Charge
Roger D. Richardson, AIA
Project Manager
Richard W. Whealan, AIA
Project Architect
S. Christine Seals
Michael Shearman
Design Staff
T. Stefan Bruce
Interior Design

Client
Waynesboro City Schools
(540) 946-4600

Grade span
Pre-K-5

Current building capacity
775

Current building area
79,910 square feet

Total project costs
$6.2 million

Cost per square foot
$78

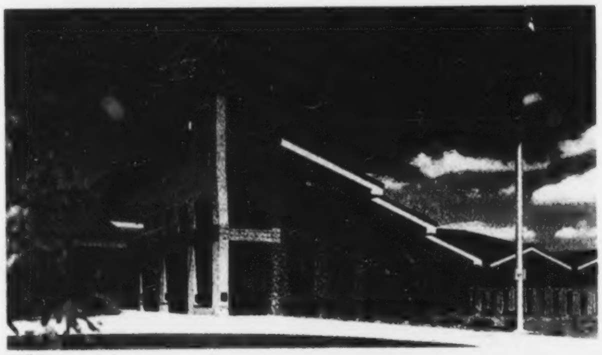
Space per student
103 square feet

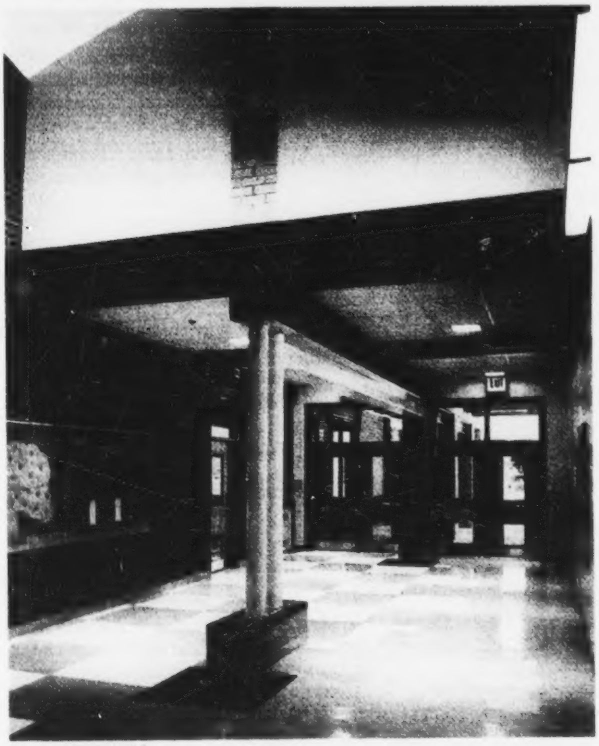
Cost per student
$8,000

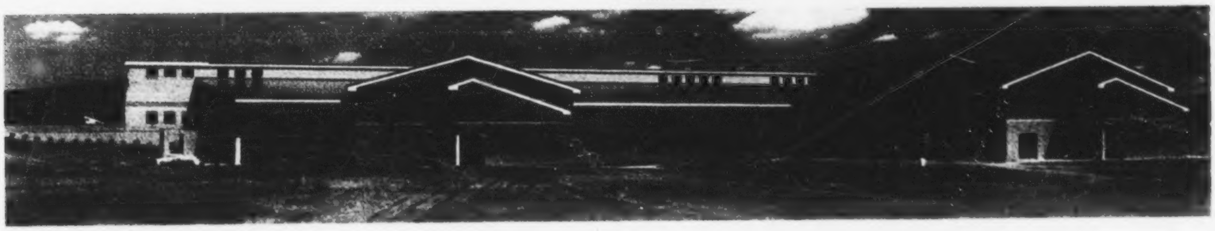
Completion date
April 1996

William W. Perry Elementary School in Waynesboro, Va., is not a "traditional" elementary school. It joins only 15 other schools across the nation identified as members of the Basic School Network, established in 1992 by the Carnegie Foundation for the Advancement of Teaching. The purpose of a Basic School is to keep the urge to learn alive in every child. As is evident from the first view of William W. Perry on King Avenue, a quality educational experience and community resource is supported by a quality physical environment for young children.

As you enter, you are immersed in a child's world, a world of active learning and stimulation of the senses. A large picture window showcases the full-sized gymnasium below, inviting participation. To the right, a brightly colored administration office welcomes parents and community members. Ahead is the cafeteria, where children dine with nature's own artwork—the Blue Ridge Mountains—framed by a floor-to-ceiling picture window. As you descend a colorful stairwell, a wall of windows invites observation of activity within the art room and to the scenic views beyond. The display stage and outdoor brick am-


Bell tower entrance


Front entrance hall


Exterior

phitheater provide an extension of the arts on both sides of the room.

Head Start and preschool programs are housed in their own wing. Bright color components, scaled to a small child's height, and direct classroom access to a fenced play area allow children to identify with a smaller home within the larger building. Painted and glass block, brick, colorful steel beams, bright color and tile patterns, and windows that peek into every room create a playful environment with a myriad of learning opportunities as children move from one area of the building to another.

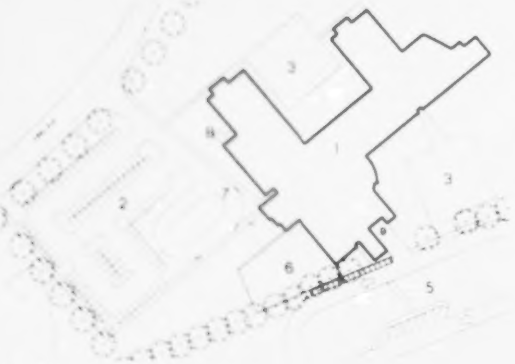
A fiber-optic backbone, unnoticed by the casual observer, serves the data technology systems throughout the building that link students and faculty with central resources and prepare for future wide-area network connection to the greater community resources available.

The goal of the Basic Schools is not just to build a better school, but to build a better world for children. It is apparent that Waynesboro didn't build a school for a day. They built it for their future. ■

Cafetorium with mountain view

Interior of media center

Preschool classroom



Site plan

ELEMENTARY SCHOOLS
Significant Project in Progress

PINE SPRINGS BOARDING SCHOOL HOUCK, ARIZONA

Holleyman Associates

Holleyman Associates
2310 SW 89th, Suite F
Oklahoma City, OK 73159
Mike Holleyman, AIA
(405) 691-0039

Design team
Mike Holleyman, AIA
Principal-in-Charge/Project Designer
Michael Abla, AIA
Project Manager
McMinimy & Associates
Structural Engineers
Design Engineers, Inc.
Civil Engineers
FE Systems Engineering, Inc.
Electrical Engineer/Mechanical Engineers

Client
Bureau of Indian Affairs
(505) 766-2821

Grade span
K-4

Current building capacity
108

Current building area
23,700 square feet

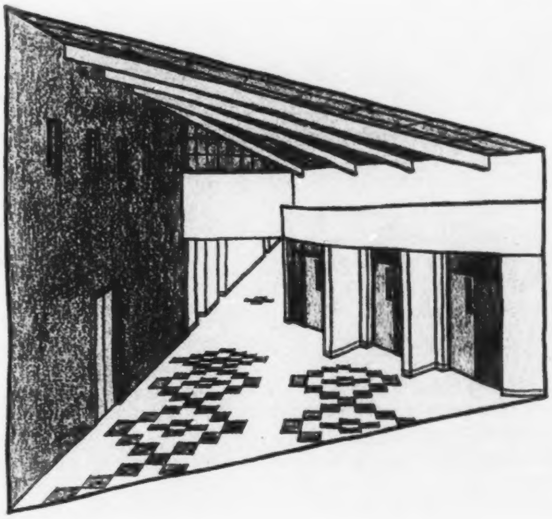
Space per student
220 square feet

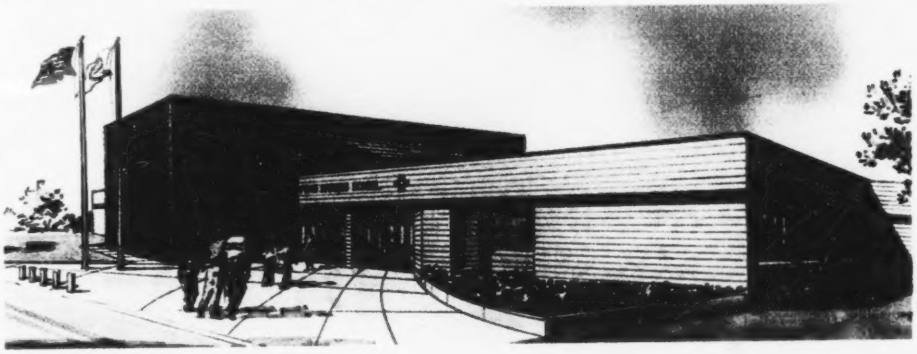
Pine Springs Boarding School (a campus for Native American children in grades K-4) faced serious problems with the existing education facilities for their elementary age children. The existing building was overcrowded and had several life-safety code violations.

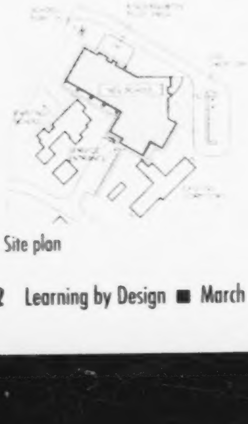
As well as providing design services, Holleyman Associates reviewed the existing program of requirements for this new school and revised it accordingly to meet additional needs, codes, and standards. This revised program called for classroom space for grades K-4, a special-education classroom, library/media center, clinic, multipurpose room with full-service kitchen, and administrative offices.

The existing site was extremely tight, thus restricting the building's orientation. Therefore, the administration and lobby areas were rotated to maintain an east entrance required by the Navajo tradition of orienting entries towards the rising sun. Other cultural elements played a major role in the design of the building. The community's colors included turquoise and black, and these colors are used throughout the building. Also, throughout the school's corridors, a Navajo rug pattern is repeated on the floor by using multicolored tiles.

The addition of this new elementary school will provide a source of pride for the Pine Springs Community and for the students. ■


Lobby


Main entrance


Site plan

Floor plan

ELEMENTARY SCHOOLS
New Construction

PLEASANT VALLEY ELEMENTARY SCHOOL BRODHEADSVILLE, PENNSYLVANIA

The Ray Group Inc.

The Ray Group Inc.
127 E. Orange Street
Lancaster, PA 17602

William C. Wagner, II
(717) 392-6502

Design team
Michael R. Patton, RA
President

Bonnie M. Sowers, AIA
Partner-in-Charge

Thomas Marcinkoski, AIA
Project Architect

Brad Kral

Liberty Engineering
Structural Engineering

Derck & Edson Associates
Site Design/Civil Engineering

J.E. Biro & Associates
MPE Engineering

Client
Pleasant Valley School District
(717) 992-5711

Grade span
K-4

Current building capacity
1,700

Current building area
164,600 square feet

Total project costs
$13.34 million

Cost per square foot
$81

Space per student
97 square feet

Cost per student
$7,847

Completion date
August 1995

NEW ELEMENTARY SCHOOL

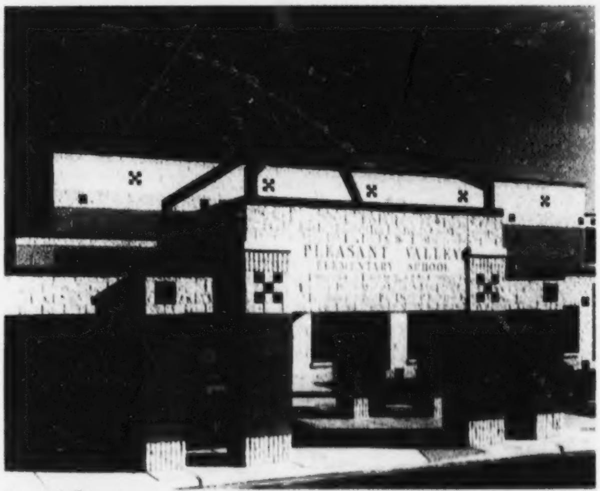
Site plan

The genesis for construction of the new Pleasant Valley Elementary School involved consolidating three existing buildings into a single new facility to serve 1,700 students. At the front of the building is a one-story section housing administration, guidance, music, and kindergarten. The scale of this section was limited in order to diminish the impact of the larger volume spaces (library, gymnasium, cafeterium, kitchen, and boiler room) concealed behind it. All classrooms are contained in adjoining two-story sections.

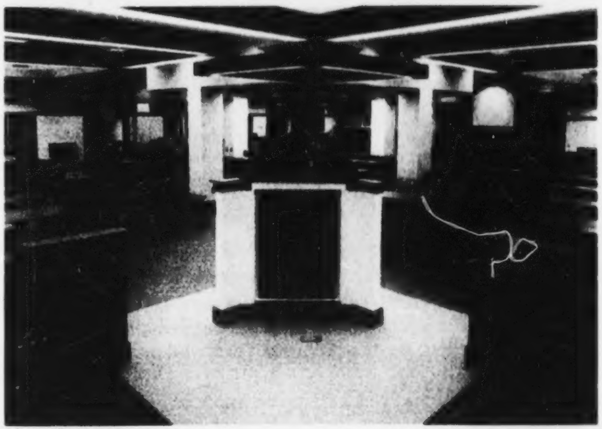
Entrances to the building are easily identified by exterior canopies. A structural-steel silhouette holding an operable school bell sits atop the main entrance canopy. Interior entry nodes are accentuated with clerestory light and colorful patterned terrazzo floors.

The two-story classroom wings house separate grade levels and connect to the main building at major corridor intersections with small, open-group instruction areas accented by arches or glass-block partitions. The major corridors terminate in stairwells individually identified on the exterior with a variety of roof forms, ground-face block, and cast-stone medallion inserts. This articulation is maintained throughout the building.

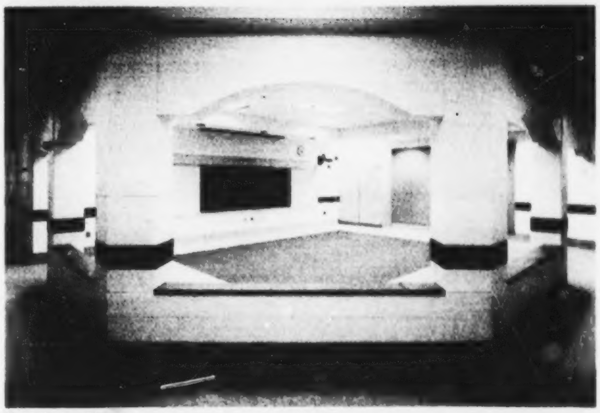
Coal is the major fuel source for this district, requiring a sizable two-level mechanical plant. The building is completely air-conditioned and uses a four-pipe water distribution system to individual classroom units and major central air handlers. ■



Canopy bell tower

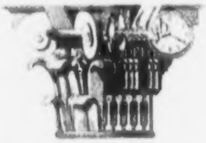


Library/story area



Open instruction area

ELEMENTARY SCHOOLS
New Construction



PRAIRIE ELEMENTARY SCHOOL WAUNAKEE, WISCONSIN

Bray Associates • Architects, Inc.

Bray Associates • Architects, Inc.
1807 Erie Avenue
Sheboygan, WI 53081-3076

Stephen J. Kuhnen
(414) 459-4200

Design team
Lawrence C. Bray
Principal-in-Charge

Stephen J. Kuhnen, AIA
Design Architect

Mark Schuchardt, AIA
Project Architect

Patricia Balliet
Interior Designer

Thomas Nack
Construction Administrator

Client
Waunakee Community School District
(608) 849-2000

Grade span
EC-4

Current building capacity
725

Current building area
93,983 square feet

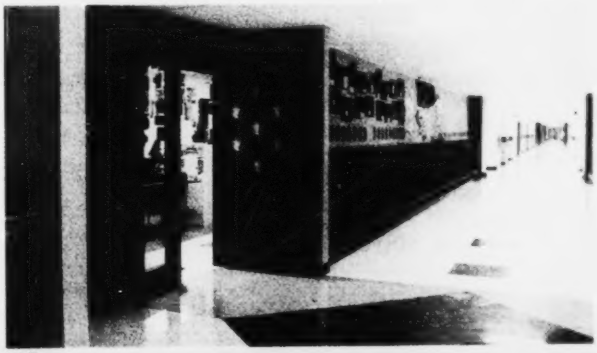
Total project costs
$7 million

Cost per square foot
$75

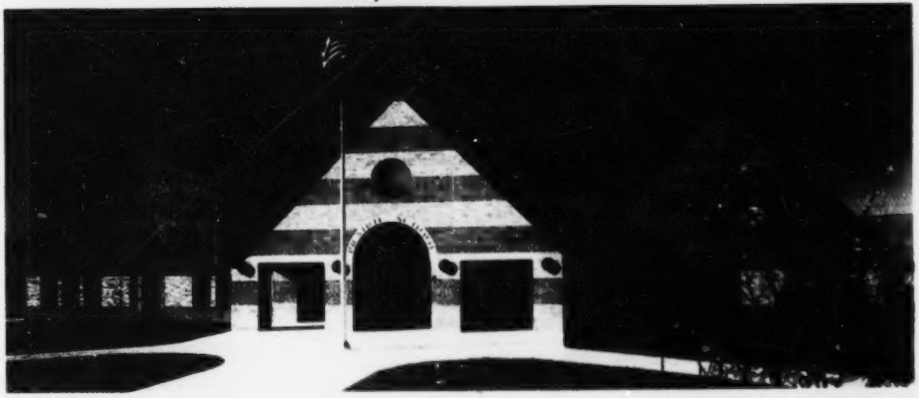
Space per student
130 square feet

Cost per student
$9,676

Completion date
August 1996



Hallway



Entrance

Natural light in every classroom and the multipurpose room, as well as bright colors throughout, results in a very friendly and playful building for Prairie Elementary School in Waunakee, Wisc.

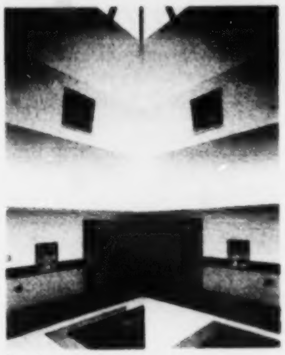
The school has 24 regular, three kindergarten, and two early-childhood classrooms, plus art, music, and physical education areas, broken into four wings:

- First and second grades.
- Third and fourth grades.
- A large instructional area with special-use rooms for early childhood education, kindergarten, art, and music.
- The library, known as the Learning Materials and Technology Center (LMTC). Equipped with a data distribution room that links Prairie Elementary with other schools in the district, the LMTC acknowledges the computers and state-of-the-art technology installed throughout the facility. A skylight helps illuminate the centrally located LMTC.

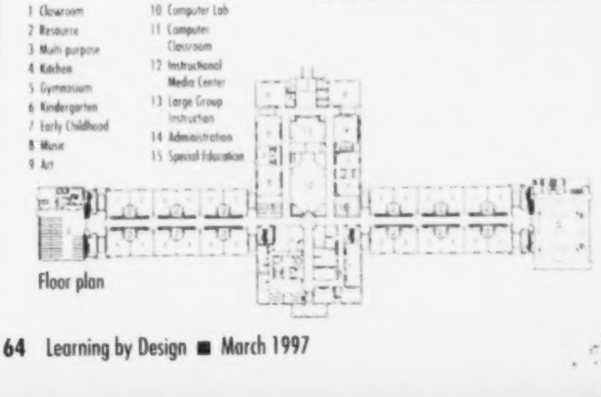
The facility's design incorporates pitched roofs to help break down the mass, and blend in with the surrounding residential neighborhood, which also allows for head room between the trusses, where catwalks were installed for convenience in accessing mechanical systems.

To accommodate standard instructional methods or team teaching, two of every six rooms are divided by a movable partition. In addition, every set of two adjoining rooms shares a small resource center for one-on-one teacher/student interaction or teacher lesson planning.

To facilitate community use, the gymnasium is located at the end of one wing and the cafeteria at the end of the other; each can be entered directly from the outside for evening and weekend events. ■



Interior



Floor plan

258

ELEMENTARY SCHOOLS
New Construction

RIVIERA SCHOOL
KELSEYVILLE, CALIFORNIA
Hansen Associates Architects and Planners

Hansen Associates Architects and Planners
P.O. Box 868
Tiburon, CA 94920

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Design team
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Architect

Buehler & Buehler
Scott Hooker
Structural Engineer

Capitol Engineering
Robert J. Alesi
Mechanical Engineer

Seneca Engineering
Tariq Khalidi
Electrical Engineer

Client
Kelseyville Unified School District
(707) 279-1511

Grade span
K-6

Current building capacity
600

Current building area
29,850 square feet

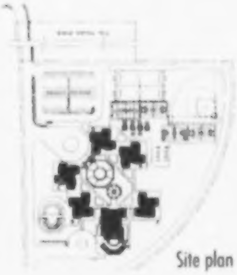
Total project costs
$3.5 million

Cost per square foot
$126

Space per student
49 square feet

Cost per student
$5,840

Completion date
September 1995



Site plan

The desire to take advantage of the beautiful climate in Kelseyville, Calif., while educating students, produced the floor plan at Riviera School, featuring courtyards in front of each classroom. Each classroom's courtyard is sheltered by a trellis, partially covered to provide protection from inclement weather. The site plan creates a village-like atmosphere, with the multipurpose room at the center of activities. Grading was designed to take full advantage of the site and provide interesting visual effects, including outdoor spaces such as the amphitheater where performances can take place in open air.

To allow for greater flexibility and inevitable changes in the future, the architect designed a free-span space within each pavilion housing four classrooms. Natural ventilation is achieved by locating operable clerestory windows in each classroom. Building materials were chosen based on their low maintenance and budget considerations. This project was fully funded by the Office of Public School Construction in California. ■

Exterior

Gymnasium

Classroom

ELEMENTARY SCHOOLS
Renovations/Additions

SOLOMON SCHECHTER DAY SCHOOL OF GREATER BOSTON NEWTON, MASSACHUSETTS

Earl R. Flansburgh + Associates, Inc.

Earl R. Flansburgh + Associates, Inc.
77 North Washington Street
Boston, MA 02114

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(617) 367-3970

Design team
David S. Soleau, AIA
Principal-in-Charge

Suzanne Rivitz
Project Manager

Robert M. Lauricella, AIA
Project Architect

Client
Solomon Schechter Day School
(617) 964-7765

Grade span
4-8

Current building capacity
290 students

Current building area
54,000 square feet

Building area before addition/renovation
34,000 square feet

Total project costs
$3.5 million

Cost per square foot
$65

Space per student
186 square feet

Cost per student
$12,069

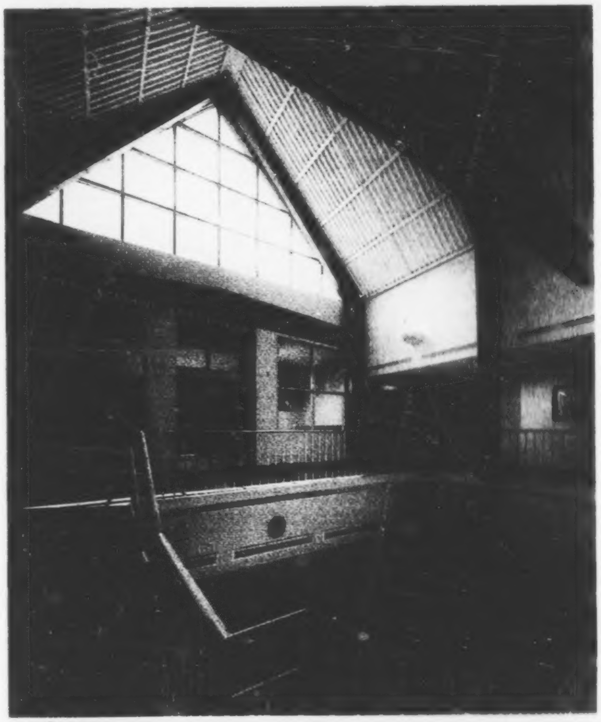
Completion date
September 1995

The Solomon Schechter middle school was created by the conversion and expansion of an existing light industrial facility to accommodate the expanding enrollment of this conservative Jewish day school.

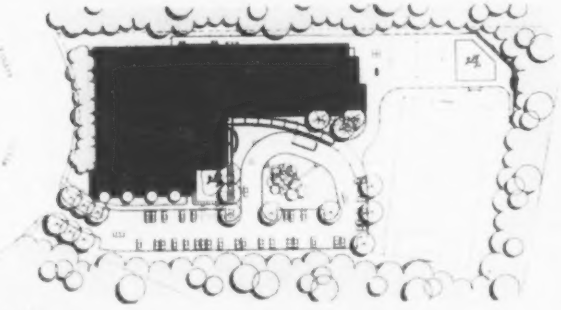
The existing structure consists of two wide span prefabricated "Butler" type buildings linked by a flat-roofed section. The wide span buildings have rigid steel bents, lightweight steel purlins and decking, a concrete slab on grade, and a concrete block exterior skin. To accommodate the educational program, a second floor was added to the smaller of the two buildings, along with an elevator and stairs.

A new entrance to the school was created with the addition of a long, curved red canopy. A new roof monitor allows natural light into the central lobby and into the library. Windows were added to the existing concrete block exterior to bring light into the classrooms, along with a new roof, insulation, and building utilities.

This two-story 54,000-gross-square-foot facility accommodates 290 students in grades four through eight. The educational program includes 16 general classrooms, five cluster classrooms, a library, a science classroom, a science lab, an art room, four tutorial spaces, and three flexible student forum areas. The facility also includes a chapel-music room, a multipurpose room with a performance platform, faculty and administrative areas, a faculty lounge, and a library. ■


Central stairway

Main entrance


Site plan

Science classroom

ELEMENTARY SCHOOLS
New Construction

SHORELINE EARLY EDUCATION CENTER WHITEHALL, MICHIGAN

The Design Forum Inc.

The Design Forum Inc.
124 E. Fulton, Suite 600
Grand Rapids, MI 49503
Neale Bauman
(616) 454-1398 ext. 204

Design team
Neale Bauman
Principal-in-Charge
Dave Gibbs
Project Architect
Steve Hess
Mechanical Engineer
Amy Zeboor
Electrical Designer
Joe Bohlke
Landscape Designer

Client
Whitehall District Schools
(616) 894-8051

Grade span
K-3

Current building capacity
650

Current building area
64,590 square feet

Total project costs
$5.4 million

Cost per square foot
$84

Space per student
99 square feet

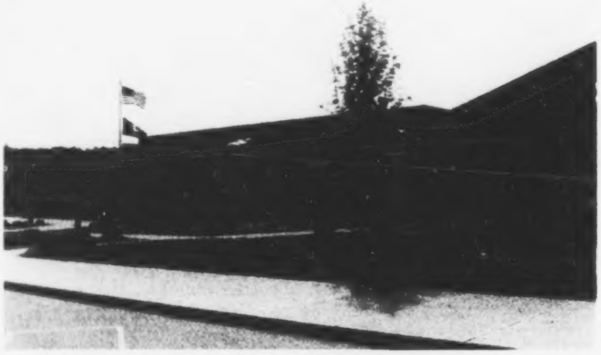
Cost per student
$8,308

Completion date
September 1994

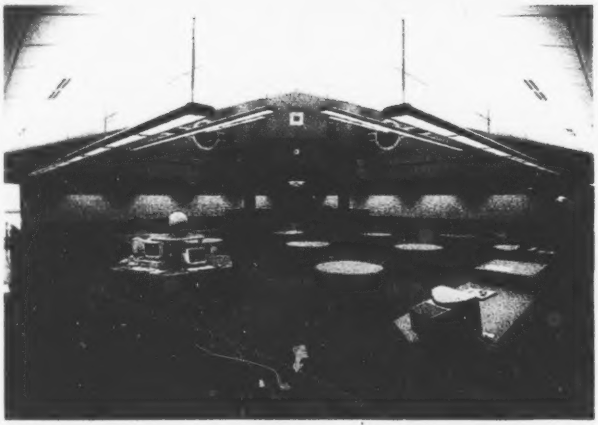
In 1991, the Whitehall District Schools and The Design Forum set out on a journey; our mission was to reinvent the elementary school. Students needed hands-on attention, more diversity, and more integrated technology. Teaming concepts, accepted in middle school, were being considered. It was time for change.

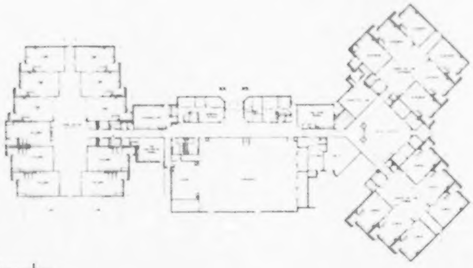
Shoreline Early Education Center was the result of that journey. The building is organized around grade-level pods, each divided into two teams. These teams are grouped around a larger space providing a place for hands-on activities and cooperative learning. Team classrooms are linked for easier access and shared activities. Each team is further linked to the hands-on lab with a folding partition to allow greater interaction within the grade-level pod and more flexible use of the larger space. The staff meeting and work areas and kitchen support daily pod activities. A small computer lab in each pod houses 14 computers. Each classroom is also equipped with networked computers.

The media center anchors one classroom wing and serves as the hub for technology distribution. The central core of the building accommodates a full-size gymnasium/cafeteria with a stage that doubles as a music room, an art/science room, and a computer lab. Public use is facilitated by the layout, which allows accessibility to core areas while classroom areas remain locked. ■


Exterior

Kindergarten


Media center


Floor plan

ELEMENTARY SCHOOLS
New Construction

ROBERT F. SCHULTZ ELEMENTARY SCHOOL DELAWARE, OHIO

Fanning/Howey Associates, Inc.

Fanning/Howey Associates, Inc.
4930 Bradenton Avenue
Dublin, OH 43017
Clair E. Howey, AIA
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Interior Designer
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Civil/Landscaping
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Mechanical Engineer
Michael R. Novak
Electrical Designer
Robert L. Eilerman, CSI
Technical Specifications Coordinator
John Keller
Construction Administrator

Client
Delaware City Schools
(614) 363-1188

Grade span
K-5

Current building capacity
525

Current building area
55,609 square feet

Total project costs
$4.96 million

Cost per square foot
$89

Space per student
106 square feet

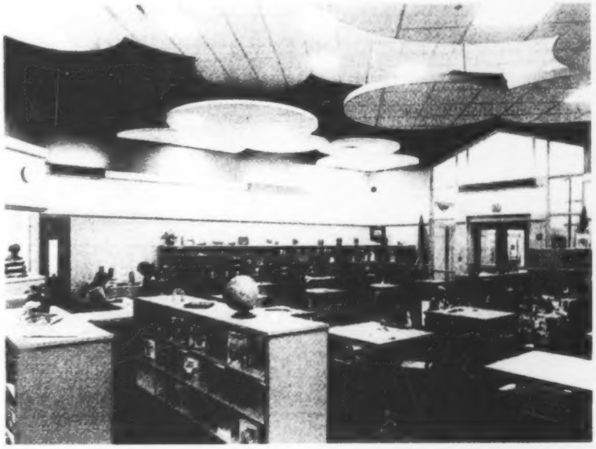
Cost per student
$9,441

Completion date
August 1995

This once-farm area has given way to the rapid community growth of Delaware, Ohio. It was important that the design of the building harmonize with its rural surroundings, as well as with the expanding community. The administration and staff expressed the need for an educational environment that would enhance the practice of teaching and promote community involvement. The new facility is seen as the vehicle that will provide cooperative partnerships with parents, community agencies, and businesses in the preparation of high-quality education, now and in the future.

The plan of the facility was designed to provide maximum flexibility in response to the current as well as potential future needs. The library/media center is positioned as the core of the academic area. Seen as the heart of the building, the media center, with its unique cloud-like ceiling design, allows and encourages young imaginations to soar. A combination of direct and indirect lighting is used in the media center in order to create the proper lighting levels while reducing glare.

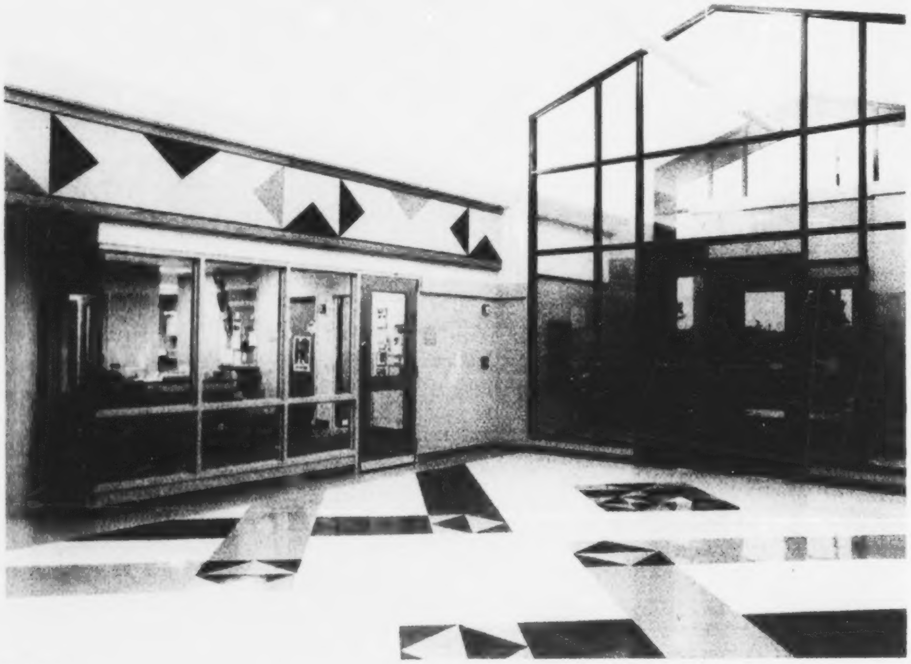
Radiating out from the library/media center are three classroom areas, or "neighborhoods." These neighborhoods help to scale down the overall building environment, as well as provide a means of simple expansion in the future. Use of natural light and awareness of the outdoors are emphasized. Each neighborhood is color coded for simple recognition, as well as visual dynamics. The kindergarten neighborhood is located directly off the main lobby for physical access and visual control.


Media center

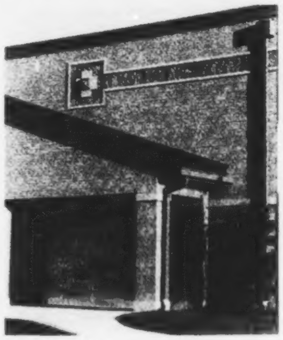
Classroom entry

Cafetorium and gymnasium are situated in order to isolate these noisier spaces from the academic area and to provide convenient community accessibility. This portion of the building is readily accessible to the parking area, service drive, and play fields. The building can also be easily secured from the academic area in order to accommodate after-hours use by the community. The cafetorium also optimizes natural light, giving visual control of the play area as well as views to the woods beyond.

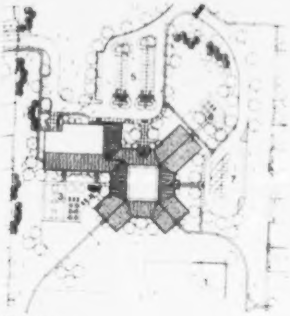
On the site, visitor and bus



Main lobby



Bus drop-off canopy



Site plan

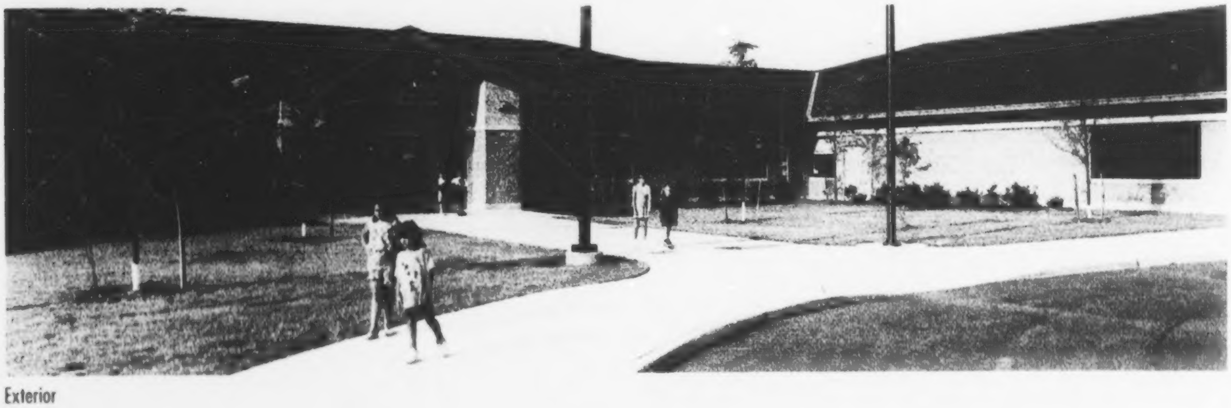
traffic are segregated from staff and community parking. A separate and secure play area is created for the kindergarten students directly off the kindergarten neighborhood.

The building structure is a combination of steel frame, with steel columns and loadbearing metal studs. The diversity and economy of masonry allowed the architect the freedom to create a building that unites the aesthetics of form and function. The exterior walls are concrete masonry units. The roofs throughout are sloped with fiberglass shingles.

The primary heating system is a hydronic, hot-water pipe looping using two gas-fired, steel water-tube boilers. The building is air conditioned. The primary air distribution system consists of one custom roof-top air-handling unit with variable air volume control and a direct expansion air cooled condensing unit. The system makeup is this central station that distributed primary air through high/medium pressure duct work to fan powered variable air volume terminal units (with heating coils) located above the ceiling at each room. The temperature control systems will be direct digital electronic system integrated with pneumatic camper actuators and valve operators.

The interior finishes in the classroom areas are a combination of carpet and/or vinyl compostion tile with acoustical ceiling and gypsum wall board partitions, covered with vinyl fabric. The gypsum wall partitions allow for maximum flexibility for the future. For durability, all corridor walls are concrete masonry. A unique feature used throughout the corridors is the use of a continuous projected 8" concrete block banding at a height of 7'4". Above this point, the wall is painted a light color, the banding and below a darker color, thus creating a kid's scale versus an adult scale within the same space.

The plan responds to the vision and desires of the Delaware City School system and community in providing a flexible, barrier-free facility which promotes as well as motivates a positive learning environment. ■



Exterior

ELEMENTARY SCHOOLS
New Construction

TANQUE VERDE ELEMENTARY SCHOOL TUCSON, ARIZONA

Arquitectura, Ltd.

Arquitectura, Ltd.
375 S. Meyer Avenue
Tucson, AZ 85701

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Giac d'Acquisto
Project Manager

Diane E. Castro
Interiors

Acuña - Coffeen
Landscape Architects

Alcalá & Associates
Electrical Engineers

Alpha Engineering
Civil Engineers

Caruso Turley Scott
Structural Engineers

Nichols Engineering
Mechanical Engineers

Design-Tec Food Facilities
Kitchen Consultants

Client
Tanque Verde Unified School District
(520) 749-5751

Grade span
K-6

Current building capacity
520

Current building area
53,000 square feet

Total project costs
$4.8 million

Cost per square foot
$91

Space per student
102 square feet

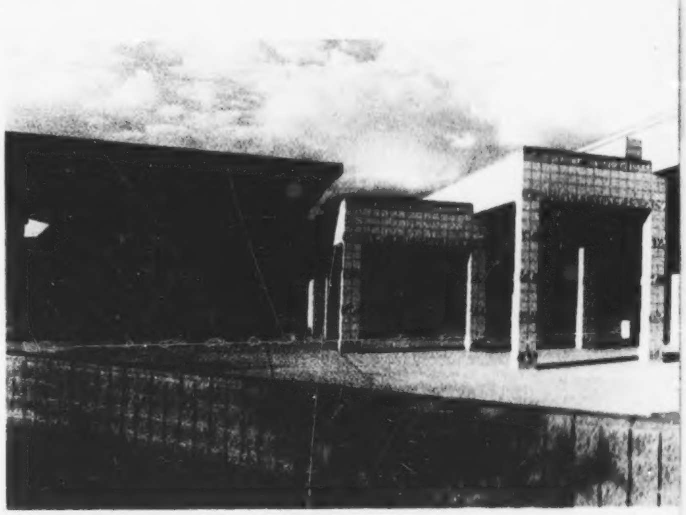
Cost per student
$9,231

Completion date
July 1996

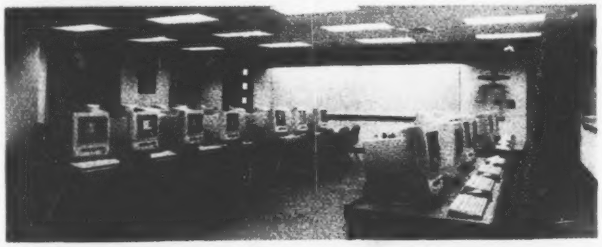
The Tanque Verde Unified School District developed specific educational objectives for building the new Tanque Verde Elementary School. The new facility would accommodate the area's growing elementary school-age population. It would respond to the district's increased demand for advanced instructional technology, provide maximum "hands-on" teaching opportunities, and emphasize the sciences and performing arts. The structure would harmonize with the natural desert fabric and respond to the spectacular neighboring mountains. Ease of community access would be critical.

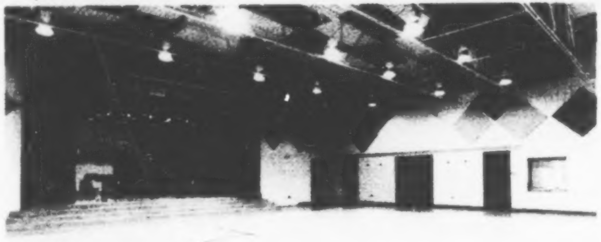
Arquitectura, Ltd. addressed the first need by arranging the classrooms into a series of V-shaped pods, set end to end across the site, allowing student grade-level gradations. Each pod provides a sense of community, using the protected exterior gathering, play, and gardening area. The central pods provide flexibility for accommodating annual enrollment fluctuations. Future growth was addressed by identifying the location of one additional pod. Shared functions were located centrally, unifying the functions of the school.

To meet the growing demands for fully integrated instructional computer technology, each classroom was equipped with four computer stations linked to the technology media center. The school was then connected to the districtwide and statewide network system. The media center contains eight computer stations, and the computer room has an 80-computer

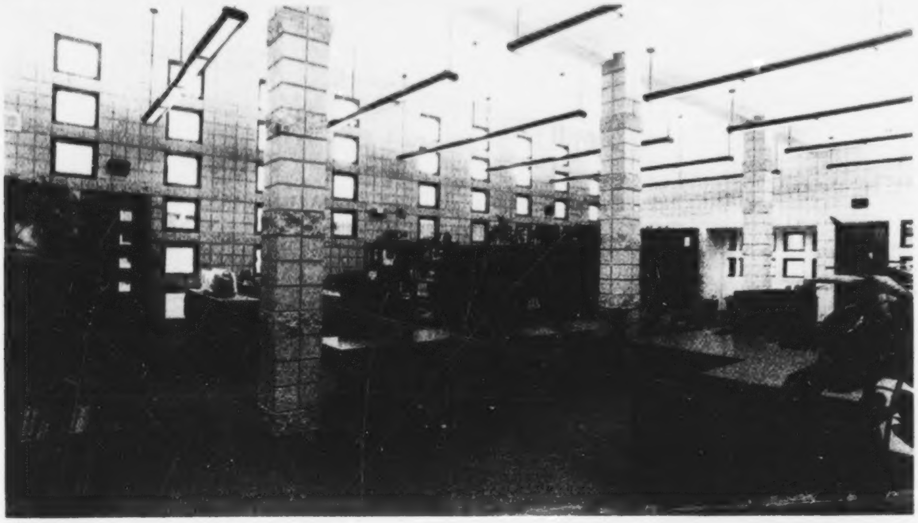

Multipurpose building entry

Exterior walkway

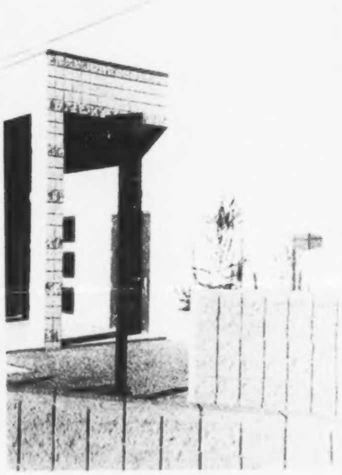

Computer room

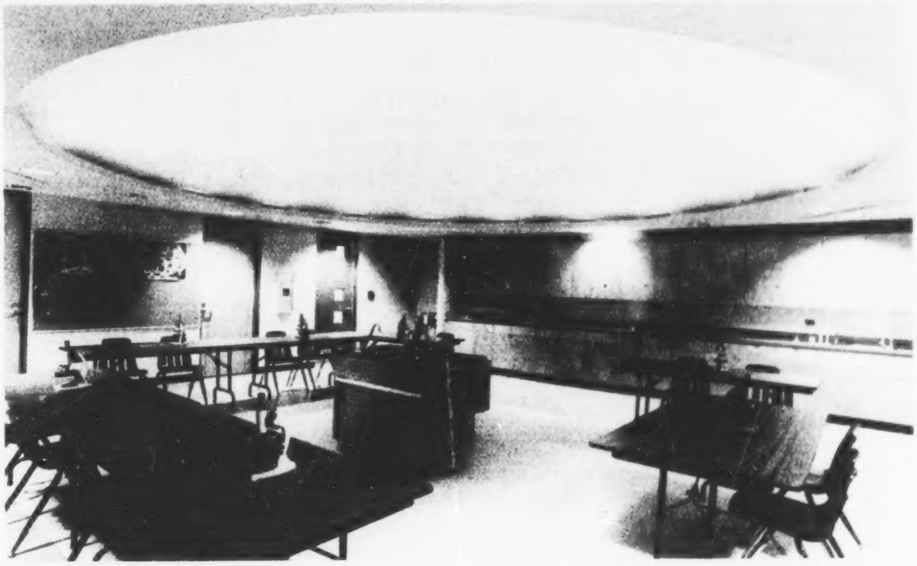

Multipurpose room

264



Library





Science room project dome

capacity.

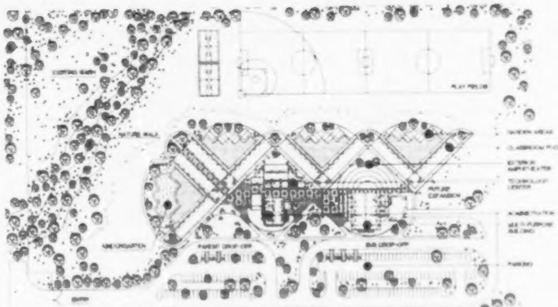
Integration of the "hands-on" teaching philosophy was accomplished first by facilitating student access to computers; second by providing student laboratory opportunities through gardening and greenhouse activities; and third by creating an extraordinary planetarium-like atmosphere via the science room projection dome.

The district has a long-standing tradition in the development of performing arts and support of community involvement. These were strengthened through the multipurpose building that features a stage area that extends to the exterior amphitheater. The exterior amphitheater is connected to the exterior plaza area by the use of umbrella-type canopies, creating extensive gathering spaces for school and community activities.

Site challenges were approached in several ways. A low, single-level building was designed to correspond to the scale of the site vegetation, and the V-shaped portion of the pods was positioned open to the mountain views. Site disturbance was minimized by salvaging and replanting existing mature vegetation and by allowing an existing wash to remain intact to serve as a nature trail. Water conservation landscaping, known as "Xeriscape," was used to collect rainwater and direct it toward planting areas.

Native prickly pear cacti were the metaphor for the selection of a rich color palette. Soft lavenders and greens recall the variety of hues in this cacti, and plum captures the color of its edible ripe fruit.

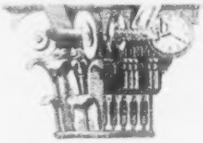
The use of center-scored and split-faced masonry reduced the scale of the building and provided for durable low-maintenance materials to weather the harsh desert environment. Natural cooling and protection from the elements were designed into the playful canopy system, which weaves and wraps itself gracefully throughout the campus. ■



Site plan

265

ELEMENTARY SCHOOLS
New Construction



ROBERT L. STEVENS SCHOOL SANTA ROSA, CALIFORNIA

Hansen Associates Architects and Planners

Hansen Associates Architects and Planners
PO Box 868
Tiburon, CA 94920

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(415) 435-5767

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Dasse Design
Kurt Lindorfer
Structural Engineer

Randall Lamb Assoc.
Joe Oberto
Electrical Engineer

Capitol Engineering
Robert J. Alesi
Mechanical Engineer

Client
Wright Unified School District
(707) 542-0550

Grade span
K-6

Current building capacity
600

Current building area
37,642

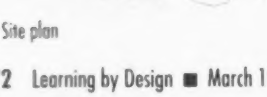
Total project costs
$4.8 million

Cost per square foot
$132

Space per student
63 square feet

Cost per student
$8,023

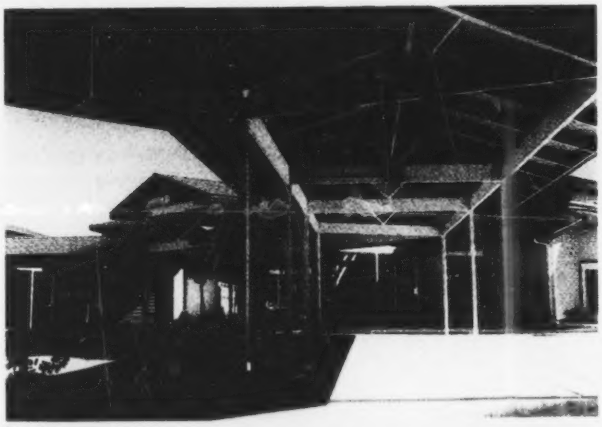
Completion date
September 1995



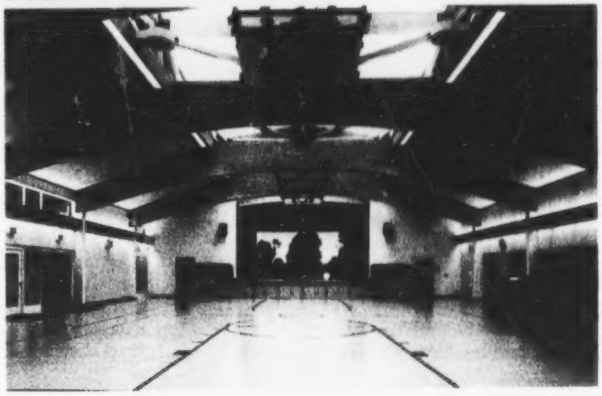
Site plan

Designed to accommodate 600 students, this state-of-the-art educational facility houses the needs of modern technology, incorporating distant learning, and providing flexible educational space easily adaptable to changing needs. The radial plan around a hexagonal courtyard offers a sanctuary for the students and an easy means of movement between the building components. Clerestory windows provide an abundance of natural light in each educational space. The shape of the classroom has been designed to provide intimacy and create the possibility of individual instruction and distance learning within the different areas of the classroom. Movable furniture allows for easy relocation of distance learning units within the classroom space.

Building materials were chosen for their maintenance-free performance and durability. The site plan allows for age segregation of students and provides a campus-like environment where vehicular access is limited to the periphery of the property. Portable units have been integrated within the overall architectural character of the complex by connecting courtyards, which create permanent character at minimal cost.



Exterior



Gymnasium

Interior

Important issues on this 10-acre site included saving existing trees, including two large oaks; screening of adjacent neighbors' yards; reducing the impact of buildings and parking while allowing visibility for security; and using nonpoisonous plants. Planting berms, a product of surplus excavation material from the site, provide an undulating landscape.

The planting scheme emphasized shade trees, using a variety of colors and forms to create interest throughout the year. Drought-tolerant planting was used to minimize water needs, and screening was provided with a combination of plantings and mounds. Outdoor facilities include a play field, two amphitheaters, play areas, raised vegetable beds, and "butterfly gardens." The design creates a variety of attractive courtyard environments.

Construction budget was based on the construction cost allowed by the Office of Public School Construction. Bids received confirmed the accuracy of the cost estimate, with two bids coming in 6 percent below the estimate. ■

ELEMENTARY SCHOOLS
New Construction

TRAILWOODS ENVIRONMENTAL SCIENCE MAGNET SCHOOL KANSAS CITY, MISSOURI

Mackey Mitchell Zahner Associates

ARCHITECTURE AWARD WINNER

Mackey Mitchell Zahner Associates
112 W. Ninth, Suite 600
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Bryan J. Gross, AIA
Project Designer

Mark R. Roland
Project Architect

M.E. Group
Mechanical/Electrical Engineers

SK Design Group
Civil Engineers

Structural Engineering Associates
Structural Engineers

Koutelas & Associates
Food Service

Ada Neidenthal
Landscape Architect

Pat Bartko
Cost Estimating

Client
Kansas City, Missouri School District
(816) 418-8000

Grade span
K-5

Current building capacity
560

Current building area
61,500 square feet

Total project costs
$5.9 million

Cost per square foot
$96

Space per student
110 square feet

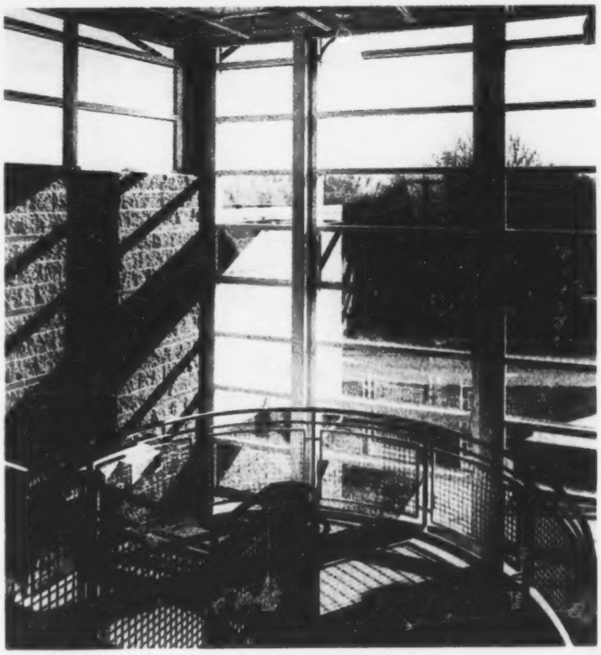
Cost per student
$10,543

Completion date
June 1995

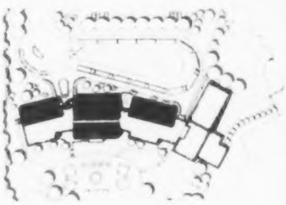
An environmentally-conscious building, the 61,500-square feet Trailwoods Elementary School houses kindergarten through fifth grade. It provides students with an environment of interaction, engaging students with the world around them.

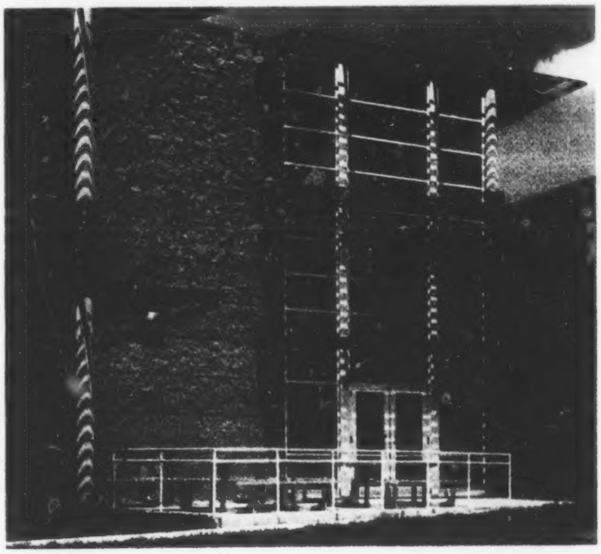
The building takes full advantage of the sun's power through passive and active solar gain, and it captures the wind to naturally ventilate the building and create electricity. It also takes advantage of the earth's insulating benefits. Environmental features include a wind generator, a greenhouse, a ground source heat pump, photovoltaic solar panels, and window overhangs.

The school is nestled into a hillside with the lower floor fully contacting the earth on the north, thus minimizing cold, northern exposure. The building presents a two-story facade to the south, maximizing solar gain. On the inside, connecting links between individual blocks of classrooms become transitional points along corridors with both visual and physical ties to the outdoors. Glass on the south facade provides orientation, as well as views to the surrounding wooded site. Sunlit interiors are ideal for indoor plants and trees.


Stair lobby

Through an understanding of the concepts of sustainable design, students learn how society can tread lightly on the natural environment and preserve its resources. ■


Site plan


South elevation

ELEMENTARY SCHOOLS
New Construction

TYE RIVER ELEMENTARY SCHOOL NELSON COUNTY, VIRGINIA

VMDO Architects, P.C.

VMDO Architects, P.C.
116 Second Street, NE
Charlottesville, VA 22902
Robert W. Moje, AIA
(804) 296-5684

Design team
Robert W. Moje, AIA
Principal-in-Charge
Todd W. Bullard, AIA
Project Manager
Robert Vickery, FAIA
Design Consultant
Joseph Atkins, RA
Montie Breeden, AIA
Brian Broadus, RA
Joseph Celentano, AIA
Ruthellen Outlaw
Mark Roehrle
Project Architects

Client
Nelson County Public Schools
(804) 263-8311

Grade span
K-6

Current building capacity
700

Current building area
70,000 square feet

Total project costs
$5 million

Cost per square foot
$71.43

Space per student
100 square feet

Cost per student
$ 7,142

Completion date
August 1995

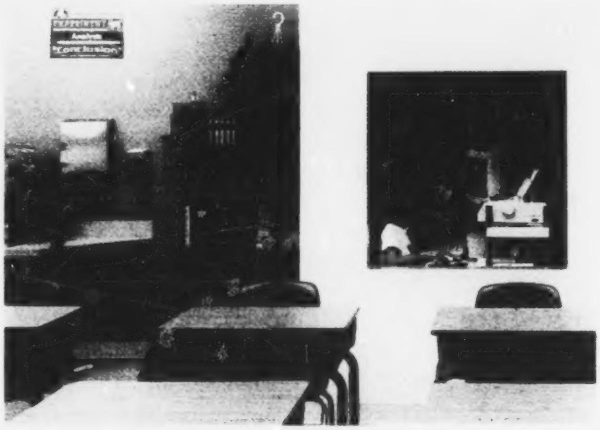
Construction was recently completed on this new 625-pupil elementary school located in the southern part of Nelson County, a beautiful, rural landscape of rolling mountains and clear streams. The school was built simply, but the design is enlivened by the inclusion of a courtyard and the use of a variety of finish materials.

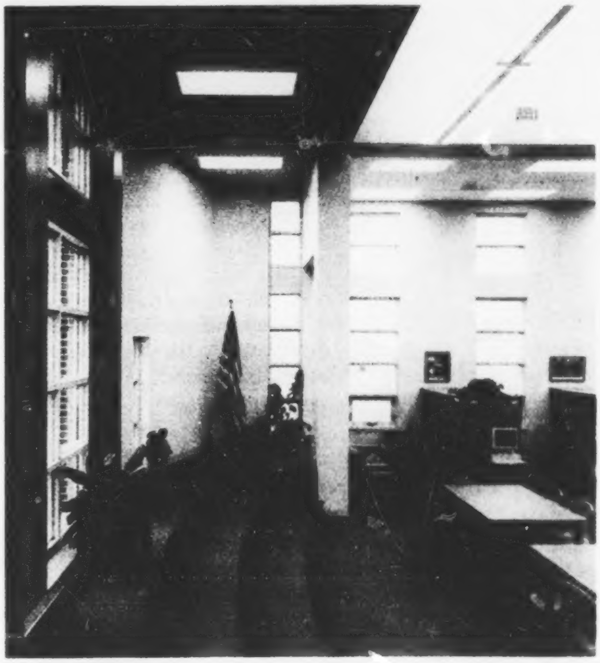
The budget supported a complete educational building program, including general-purpose classrooms for each grade, music and art rooms, a library and media center, a gymnasium, and a cafeteria. The square-foot cost includes developments to the site, such as access, parking, and playing fields; provisions for computers in every room; a security system; and a self-sufficient drinking water and septic system.

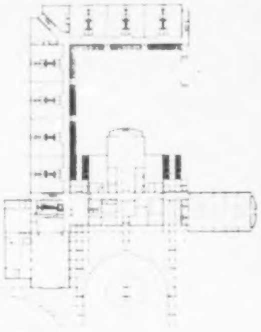
Due to the teachers' desire to have large classrooms at each grade level, all classrooms are sized at the state's kindergarten square-footage requirements, exceeding the normal space for older grades. The building is designed to be expanded by 150 students.

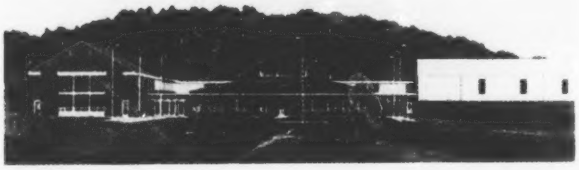
The site provides separate play areas for older and younger students, as well as play fields for school and community recreation.

All utilities are provided on site. A separate waterworks utility building is located on site, providing domestic and fire-suppression water. The cost of all utility systems was included in the cost to the building. ■

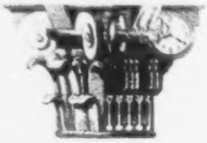

Interior


Library


Site plan


Exterior

ELEMENTARY SCHOOLS
Renovations/Additions



WASHINGTON PARK SCHOOL
TOTOWA, NEW JERSEY
LAN Associates, Inc.

LAN Associates, Inc.
662 Goffle Road
Hawthorne, NJ 07506

Kenneth P. Mihalik, RA
(201) 423-0350

Design team
Kenneth H. Karle, RA, PE, PP
Principal-in-Charge

Kenneth P. Mihalik, RA
Project Architect

Tony Ho, PE
Mechanical Engineer

Mark Micucci, PE
Structural Engineer

Client
Totowa Board of Education
(201) 956-2125

Grade span
K-6

Current building capacity
410

Current building area
59,360 square feet

Building area before addition/renovation
47,360 square feet

Total project costs
$2.0 million

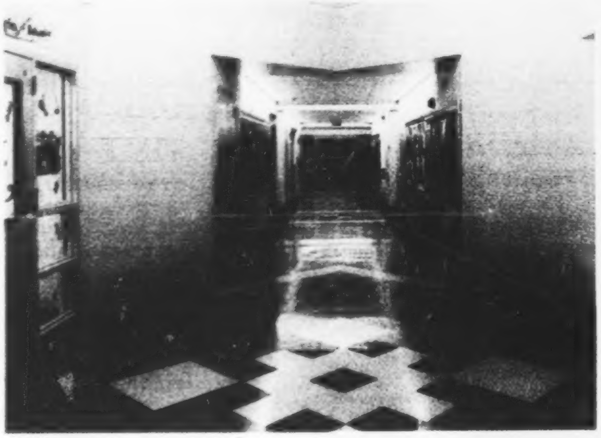
Cost per square foot
$150

Space per student
145 square feet

Cost per student
$4,878

Completion date
May 1996

The Totowa Board of Education added 12,000 square feet to its existing 48,000-square-foot Washington Park School after realizing increased enrollment and increases in the number of special programs. The new second-story wing was built directly over the existing one-story building and now houses the common areas for the entire school by containing rooms such as computer lab, music, art, special education, pre-kindergarten, media center, and speech. This allowed the school to convert many of its existing rooms back to regular classroom use—rooms which had been converted to these common areas over the years. The board opted for adding vertically instead of horizontally in order to preserve the school's open land area as much as possible.



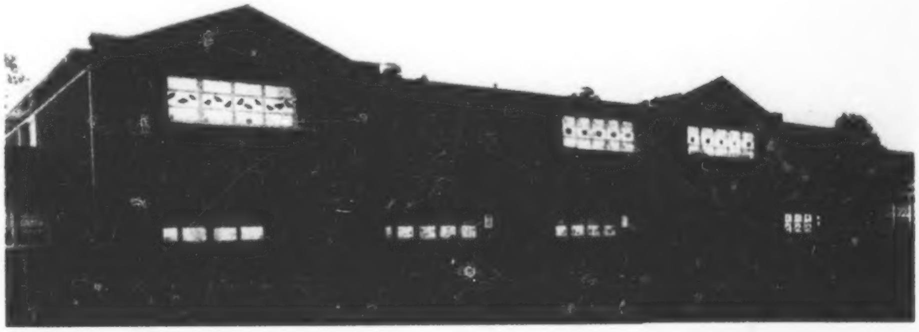
Corridor

Due to the fact that the existing structural system was not adequate to support a second story, a completely independent structural framing system was designed to span over the existing building. This involved erection of steel columns along the perimeter of the building as well as one bay of new columns at the interior of the existing building in order to economically support the 70-foot floor span. The existing sloped-roof structure had to be removed to accommodate the insertion of the new steel frame.

The actual construction of the building was accomplished through careful planning and timing by LAN Associates, the school board, and the various prime contractors. This was a difficult challenge, considering the short time frame available during the summer months and the fact that the facility had to be made weathertight with the first floor being operational for the start of school in September. Demolition of the existing pitched roof, erection of the steel frame, installation of the mechanical systems (some of which had to be run above the ceilings of the first-floor classrooms), insertion of stair towers and elevator shaft, replacement of damaged first floor finishes, and the closing-in of the first floor all had to be completed during the twelve-week summer vacation period. ■

Interior

Site plan



Exterior

ELEMENTARY SCHOOLS
New Construction

ARCHITECTURE AWARD WINNER

VALLEY CROSSING COMMUNITY SCHOOL WOODBURY, MINNESOTA

Armstrong, Torseth, Skold & Rydeen, Inc.

Armstrong, Torseth, Skold & Rydeen, Inc.
4901 Olson Memorial Highway
Minneapolis, MN 55422
Paul Erickson
(612) 545-3731

Design team
James Rydeen
Principal-in-charge
William Martin
Project Manager
Elena Peltsman
Project Architect/Designer
Robert Martini
Mechanical
James Riess
Electrical
Robert Gunderson
Landscape Architect
Clark Engineering Co.
Structural Engineering
Jack Bidwell
Job Captain

Client
Collaborative effort with three districts:
North St. Paul-Oakdale-Maplewood Schools, District #622;
South Washington County Schools, District #833; and
Stillwater Area Schools, District #834
(612) 422-5500

Grade span
Pre-K-6

Current building capacity
930

Current building area
133,000 square feet

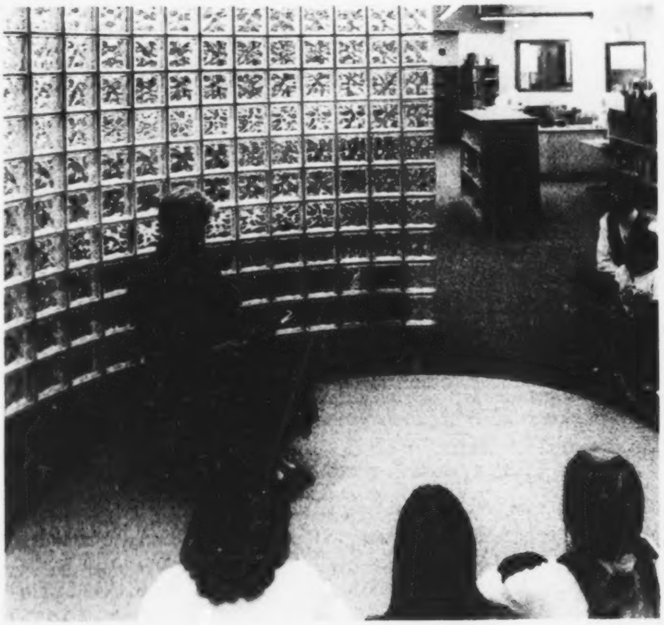
Total project costs
$11.2 million

Cost per square foot
$84

Space per student
143 square feet

Cost per student
$12,055

Completion date
September 1996

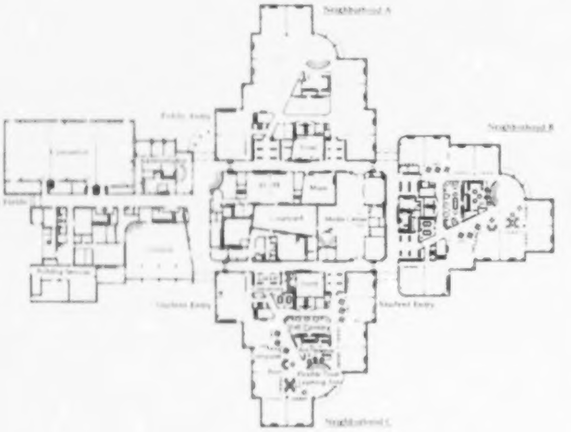


This school represents a unique collaborative effort to share a building by three districts, North St. Paul-Oakdale-Maplewood School District #622, South Washington County School District #833, and Stillwater Area School District #834, and is then managed by a fourth district, Northeast Metropolitan Intermediate School District #916, with construction funded by the county.

Educationally, using the "best practices" of the districts it is serving, this Pre-K-6 school emphasizes an integrated core curriculum with focus on high technology, individualized continuous progress, multi-age class groupings, and year-round education. Partnership with parents and community is integrated into the school philosophy.

Architecturally, this dynamic, fun, and functional 33-classroom school, divided into three "neighborhoods" or mini-schools, welcomes and excites staff, students, and the community. Maximum flexibility for varied class size groupings is achieved with the open classroom concept and folding partitions. Video, voice, and data technology systems have been integrated throughout the school to enhance the curriculum and the teaching and learning process.

Natural light, glass block, and warm color brick in the corridors enhance movement through the building. While the school enjoys a strong sense of order, it is very playful, with fun gathering places, simple and clear circulation, splashes of bright color and finishes, Media center reading

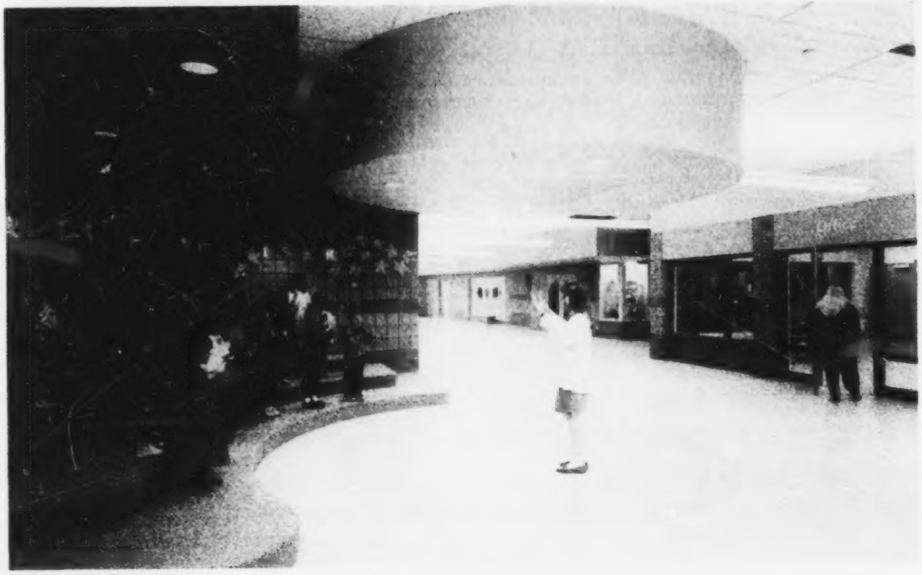


Exterior

Open classroom

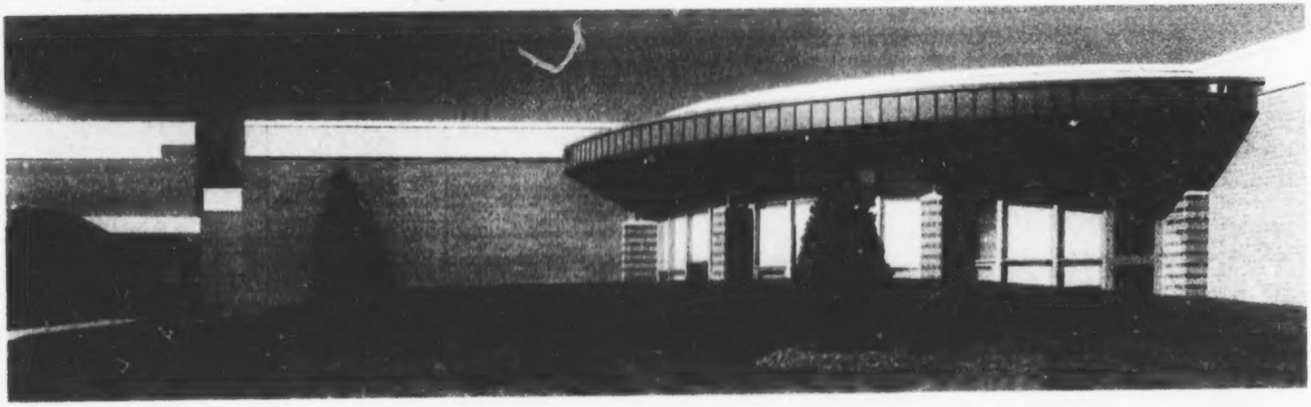
area overlooking a cozy courtyard, exciting multipurpose cafeteria, three-station gymnasium with natural light, and conference/gathering spaces including a dedicated "parent room" to welcome and encourage volunteer and community involvement.

"Valley Crossing Community School is the product of human interaction and true collaboration." ■



Main entry/gathering area

Boys/girls restrooms



ELEMENTARY SCHOOLS
Renovations/Additions

WOODBROOK ELEMENTARY SCHOOL CARMEL, INDIANA

Fanning/Howey Associates, Inc.

ARCHITECTURE AWARD WINNER

Fanning/Howey Associates, Inc.
3750 Priority Way South Drive, Suite 110
Indianapolis, IN 46240
Daniel R. Mader, AIA
(317) 848-0966

Design team
Daniel R. Mader, AIA
Principal-in-Charge
Charles R. Tyler, AIA
Project Manager
Allen J. Cradler, RA
Project Architect
David D. Frash, PE
Structural Engineer
Alvaro Villalta, EIT
Electrical Designer
Ronald J. Hunt
Mechanical Designer
James K. Perkins, ASLA
Site Planner
Nancy J. Christoph, ASLA
Landscape Designer
Garry E. Webb
Construction Administration

Client
Carmel Clay Schools
(317) 844-9961

Grade span
K-5

Current building capacity
600

Current building area
97,495 square feet

Building area before addition/renovation
72,995 square feet

Total project costs
$7.59 million

Cost per square foot
$78

Space per student
162 square feet

Cost per student
$12,655

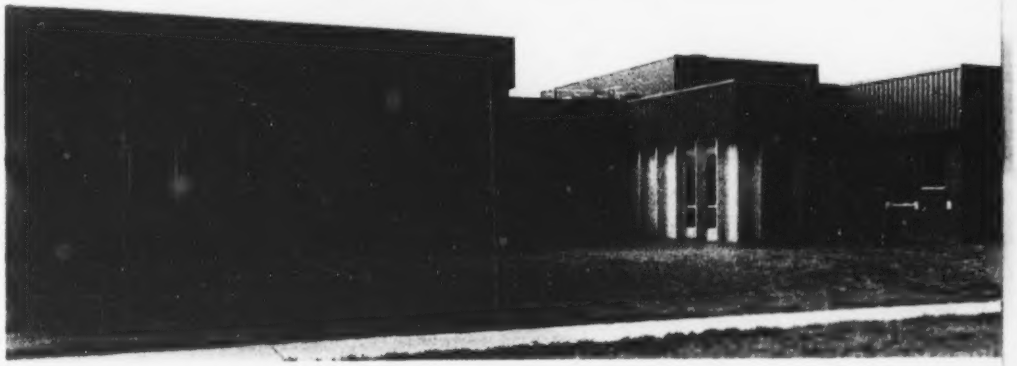
This project is a complete remodeling of the existing 1970 elementary school. The building is being brought into compliance with current building codes and requirements for persons with disabilities. An addition on the east side of the building includes a new cafeteria, kitchen, receiving area, and main mechanical room. The existing stage is being opened up to function from both sides, to the cafeteria on the east and the gymnasium on the west. The main entry to the building is being relocated from the north side to the east side to respond to a new site circulation plan. An addition on the west side of the building houses four new classrooms. Interior spaces have been reorganized to create a new media center, a large-group instruction space, and computer lab. A small addition on the north side expands existing kindergarten classrooms and makes provision for future additions.

The existing unit ventilator system is being completely replaced with a new variable air-volume system using fan-powered boxes for each classroom/zone. Hot and chilled

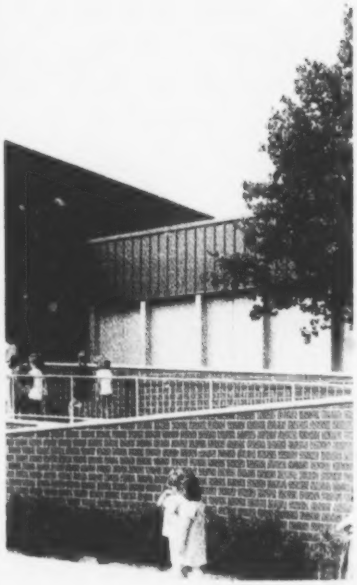
WOODBROOK
ELEMENTARY SCHOOL

Entry canopy

Media center

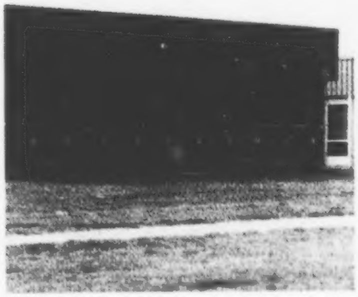


Exterior

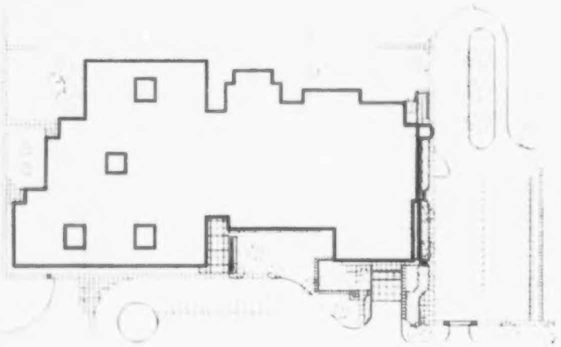


water are provided by new boilers and a new air-cooled condensing unit/chiller. The electrical distribution system is being completely replaced, and technology rough-ins are being incorporated. The building is being fully equipped with sprinklers.

The site is being reorganized to separate bus and automobile traffic and to eliminate access to the increasingly busy 116th St. ■

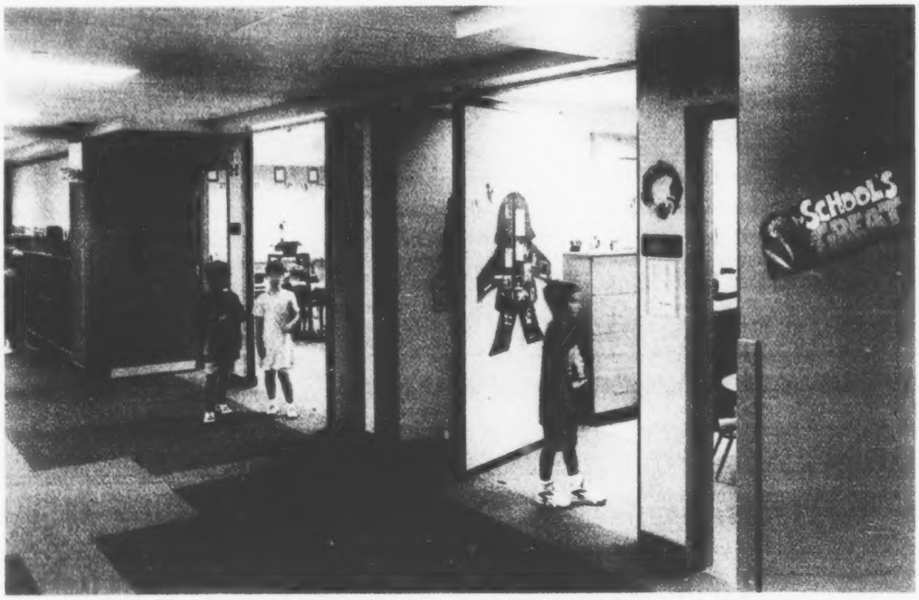


Art room



Site plan

Carpeted gymnasium



Classroom entry alcoves

273

K-8
New Construction

AGASSIZ ELEMENTARY SCHOOL CAMBRIDGE, MASSACHUSETTS

HMFH Architects, Inc.

GRAND PRIZE AWARD WINNER

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139
George R. Metzger, AIA
(617) 492-2200

Design team
George R. Metzger, AIA
Principal-in-Charge
Steven L. Millington, AIA
Project Manager
Mario J. Torroella, AIA
Design Director
Bob Pahl, AIA
Arthur S. Duffy
Vassilios Valaes
Cindy I.M. Stearns

Client
Cambridge School Department
(617) 349-6495

Grade span
K-8

Current building capacity
440

Current building area
69,000 square feet

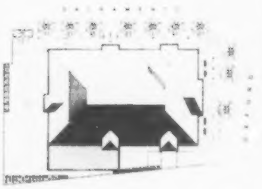
Total project costs
$10.7 million

Cost per square foot
$155

Space per student
157 square feet

Cost per student
$24,318

Completion date
September 1995

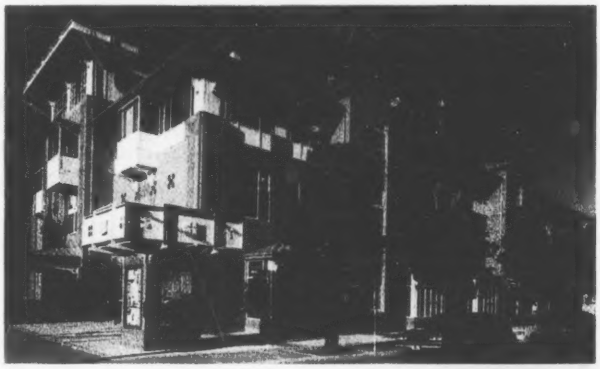


Site plan

The Agassiz Elementary School, located on a small urban site near Harvard Square, replaced an 88-year-old building that no longer met the needs of today's students. HMFH Architects developed an educational program for a new K-8 facility with a distinct middle school component and extensive community use.

Reuse of the confined, half-acre site for a program three times larger than the original school resulted in a five-level building with the gym, cafeteria, music rooms, and other community spaces on the lower level; classrooms—two per grade linked by shared project rooms—and other teaching spaces on the middle floors, and a media center on the top floor.

The school's technology network links all classrooms, offices, and activity spaces with computers available in every classroom as well as the library and adjacent computer laboratory. The network also includes video and telephone.



Exterior

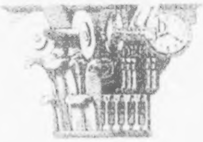
Combining education and local preservation, the new Agassiz School reuses elements of its predecessor. Carved limestone frames and wood doors serve as entrances to the cafeteria and gymnasium, and the library incorporates original beams, wood paneling, a leaded-glass doorway, and a chandelier of original light fixtures from the old school.

The character and scale of the surrounding residential neighborhood strongly influenced the exterior design, which also took its cues from the original school in the rhythm of windows and piers and the setback from the street. The colorful exterior, large brackets, entrance canopies, and free-standing kiosk all contribute to the buildings's friendly and festive presence. ■

Entry with original doorway

Science classroom

K-8
New Construction



BIG PARK COMMUNITY SCHOOL SEDONA-OAK CREEK, ARIZONA

Lescher & Mahoney/DLR Group

Lescher & Mahoney/ DLR Group
2141 East Camelback Road,
Suite 100
Phoenix, AZ 85016

Richard Pawelko, AIA
(602) 381-8580

Design team
Lescher & Mahoney/
DLR Group

Client
Sedona-Oak Creek Unified
School District
520-204-6800

Grade span
Pre-K-8

Current building capacity
600

Current building area
63,000 square feet

Total project costs
$6.37 million

Cost per square foot
$101

Space per student
105 square feet

Cost per student
$10,625

Completion date
August 1994

The Big Park Community School is designed to accommodate difficult site constraints and community use, as well as the primary, intermediate, and middle school curriculum.

A natural drainage wash bisecting the site inspired placing the buildings on both sides of the wash, thus naturally defining the primary, intermediate, and middle school classrooms and play areas.

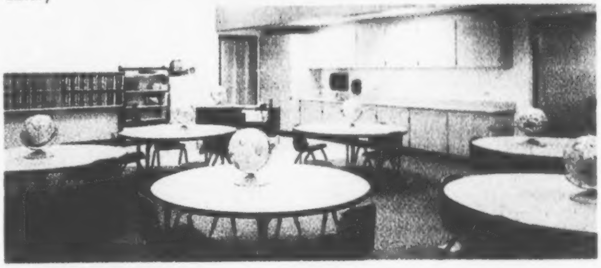
The school's single-story, horizontal facade responds to the residential neighborhood. The low-slope, Palo Verde green metal roofs and the sandblast texture and Red Buff colored masonry harmonize with the natural surroundings.

This 63,000-square-foot facility accommodates 600 students in grades pre-K through grade 8. The program includes an elementary curriculum for grades pre-K through 2 and grades 3 through 5, and a middle school for grades 6 through 8. Separate and appropriately scaled play and recreation areas, distinct primary and middle school entrances, and outdoor teaching spaces have been designed to reinforce grade-level distinction. Parking for teachers and parent volunteers is closely associated with the primary and middle school classrooms.

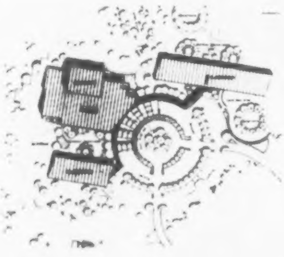
The Community Core Commons contains the media center and computer lab, cafeteria, gymnasium with stage, and art and crafts classrooms that can be isolated from the rest of the school for after-hours use. The roofed, open-air gathering area located in the center of the Community Core Commons is designed for the display of student work, to act as an informal teaching space, and to provide community use for holiday bazaars and PTA functions during the many months of mild weather. ■

Exterior

Library



Intermediate classroom



Site plan

K-8
Renovations/Additions

JORDAN-ELBRIDGE MIDDLE SCHOOL/RAMSDELL ELEMENTARY JORDAN, NEW YORK

Ashley McGraw Architects

Ashley McGraw Architects
472 S. Salina Street, Suite 800
Syracuse, NY 13202

Sandra A. March
(315) 425-1811

Design team
David Ashley, AIA
Edward McGraw, AIA
Daniel Heukrath, RA
George Green, AIA
Peter Larson, RA
Karin Green, RA
Young Lee

Klepper Hahn & Hyatt
Structural Engineers

Fraser & Fassler
Mechanical Engineers

Appel Goff Associates
Landscape Architects

Angevine
Acoustical Consultants

Jack Eisenbach Engineers
Abatement Consultants

Client
Jordan- Elbridge Central Schools
(315) 689-3978

Grade span
3-8

Current building capacity
600

Current building area
151,000 square feet

Building area before addition/renovation
65,000 square feet

Total project costs
$13.9 million

Cost per square foot
$92

Space per student
120 square feet

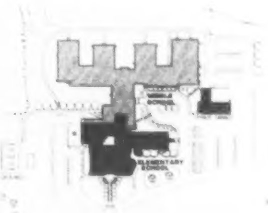
Cost per student
$23,166

Completion date
September 1996

The Jordan-Elbridge Middle School project was designed to facilitate the school district's vision of an interactive educational and community facility. The goal was to renovate the existing 1929 edifice and erect a new, distinctive building that would accommodate the restructuring of grades six through eight in a new campus environment.

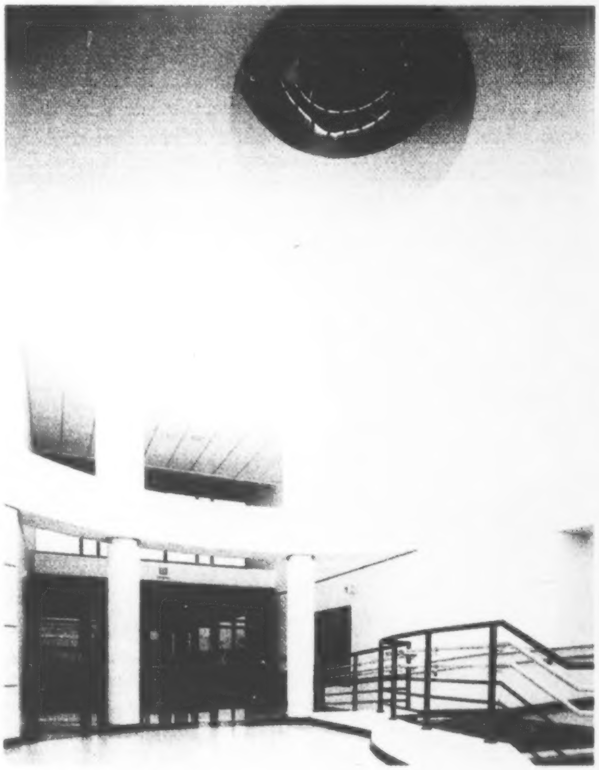
Working closely with the school board and the superintendent, Ashley McGraw Architects evaluated the existing facilities, reworked initial design concepts, and developed a program that would meet this challenge. Entryways framed by ornamental stone, accented brick recesses, and stone banding reflect the existing building aesthetic.

The centerpiece of the building is the lobby/rotunda, a tall skylit area that creates a unique gathering space between the media center and the main entry, connecting all the essential public spaces. A large group instruction room, media center, computer laboratory, technology center, skylit halls, science rooms and classrooms, two gymnasiums, and a cafeteria with commercial kitchen facilities are also included. Separate grade level wings also help create a sense of community within the larger building.



Site plan

New entry facade



Middle school rotunda

The renovation of Ramsdell Elementary transforms existing gymnasium space into a new media center and occupational therapy lab, and it furnishes a computer lab, administrative offices and refurbished classrooms. All new finishes, insulated walls, lighting, mechanical systems, windows, and a new roof have been provided.

The entire facility is accessible to the disabled, and completely wired with fiber-optic networking, telecommunications, and instructional video. ■

K-8
Renovations/Additions

LINCOLN SCHOOLS CAMPUS INFORMATION RESOURCE CENTER
LINCOLN, MASSACHUSETTS

HMFH Architects, Inc.

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139
Stephen Friedlaender, AIA
(617) 492-2200

Design team
Stephen Friedlaender, AIA
Principal-in-Charge

Pip Lewis, AIA
Project Manager

Mario J. Torroella, AIA
Design Director

Doug Sacra

Ron Lamarre

Vassilios Valaes

Burt Barachowitz

Bob Pahl

Cindy I.M. Stearns

Client
Lincoln Public Schools
(617) 259-9400

Grade span
K-8

Current building capacity
600

Current building area
31,300 square feet

Total project costs
$3.6 million

Cost per square foot
$115

Cost per student
$6,000

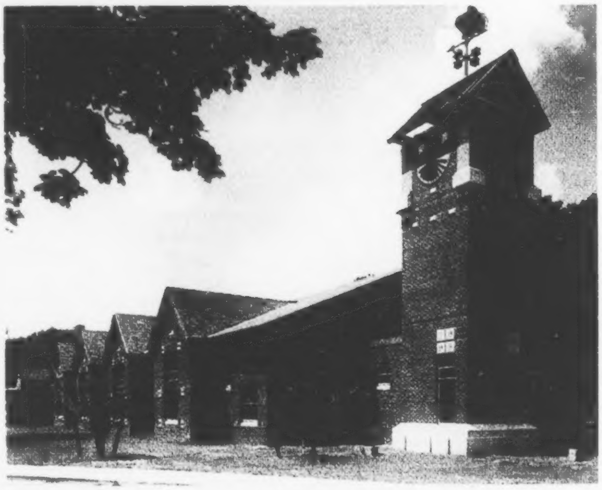
Completion date
December 1995

The Campus Information Resource Center links the upper and lower schools on this rambling K-8 campus and is part of a larger addition and renovation project undertaken for the Town of Lincoln to address its growing elementary school enrollment and aging facilities.

Seen from the entrance to the campus, the center's bell tower, with its playful sundial face and real bell, welcomes students and visitors to the school. The center is truly the hub of the campus, where K-5 students can gather in the story-telling alcove at one end, while at the other end, middle schoolers have access to sophisticated research and presentation tools.

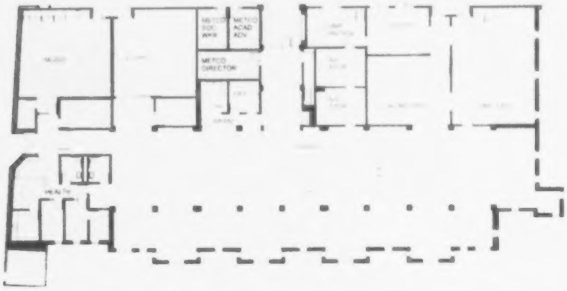
Computers clustered near the librarian's desk are available to students writing reports. In addition, a series of rooms opening off the upper-school end of the library are dedicated writing, computer, and video laboratories, all networked to the school's computer control room, also within the information resource center area. Nearby, a laboratory introduces middle school students to simple robotics and other new technologies.

The main reading room is a bright, inviting space featuring a vaulted ceiling, extensive natural light, and cozy, sun-filled reading nooks. The use of matching library shelving and woodwork, the carefully detailed steel roof structure of the reading room, the specially designed lighting, the selection of furnishings, and the use of color, were all intended to reinforce a comfortable image of traditional New England libraries. ■

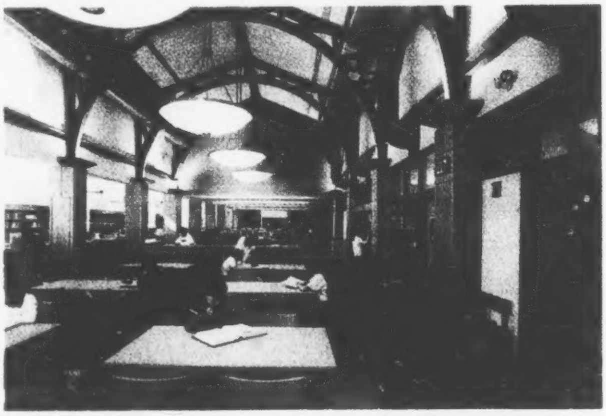


Exterior

Reading alcove



Information Resource Center floor plan



Information Resource Center

K-8
Renovations/Additions

WEST TISBURY ELEMENTARY/MIDDLE SCHOOL
WEST TISBURY, MASSACHUSETTS

The Design Partnership of Cambridge, Inc.

The Design Partnership of Cambridge, Inc.
86 Sherman Street
Cambridge, MA 02140
Douglas H. Flockhart, AIA
President
(617) 492-2550

Design team
Douglas H. Flockhart, AIA
President
Principal-in-Charge
William B. Brainard, AIA
Project Manager/Architect
Joseph Drown, AIA
Job Captain
David Capaldo
Stan Fink
Shawn Seaman
Project team
John Ciccolo
Peter Gaudreau
Construction Administration
Peter S. Constable
Andrea Dermody
Susan Davey
Kristen Hill
Interiors

Client
West Tisbury School District
(508) 693-9799

Grade span
K-8

Current building capacity
404

Current building area
64,000 square feet

Total project costs
$6.64 million

Cost per square foot
$86

Space per student
158 square feet

Cost per student
$13,615

Completion date
September 1995

The West Tisbury School, a kindergarten through grade 8 elementary/middle school on the island of Martha's Vineyard, experienced an increase in enrollment, creating a need for additions and renovations to the existing school.

Two separate additions resolve the overcrowding problem and provide enhanced educational facilities for the students, faculty, and staff. The 27,000 square feet of additions are located to the north and west of the existing school. The major addition, on the west, contains classrooms, music rooms, a large cafeteria/auditorium, and science classrooms. The smaller addition contains classrooms and specialized meeting rooms. There are two separate entrances, one for bus loading and unloading of students, and one for parental drop-off and pick-up.

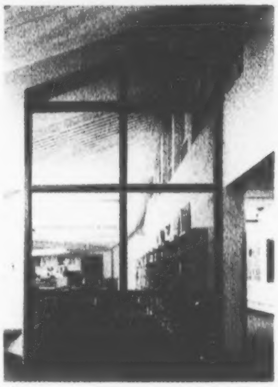
The challenge was to design significant additions (almost doubling the square footage of the existing school) while at the same time minimizing the intrusion on the landscape.

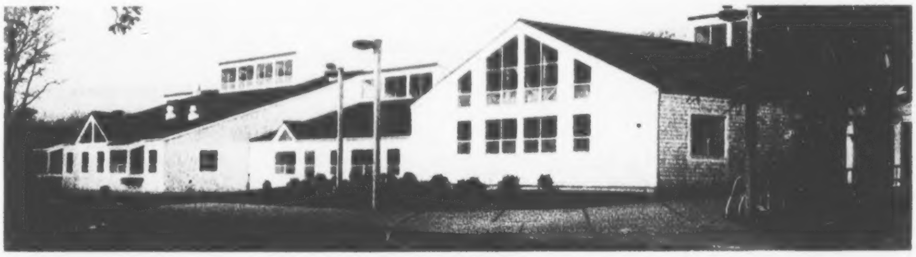
Classroom hallway

Site plan

The larger classroom wing (the west wing) is organized along a central hallway with a cathedral-like wooden-truss ceiling anchored by an atrium/gathering space. The science classrooms and laboratories at the end of the corridor are designed with movable partition walls, which may be opened onto the atrium to create a large, open space for performances and other community gatherings.

Construction is heavy timber. The exterior is white cedar shingles with painted wood trim. The design of the additions as a series of small, traditional, compact structures belies the spaciousness inside and is in harmony with the vernacular island architecture. ■


Library


Exterior

MIDDLE SCHOOLS
Renovations/Additions

AUBURN MIDDLE SCHOOL PAINESVILLE, OHIO

Burgess & Niple, Ltd.

Burgess & Niple, Ltd.
100 West Erie Street
Painesville, OH 44077

Raymond P. Corby, AIA
(216) 951-7050

Design team
Raymond P. Corby, AIA
Director of Architecture

David Meeson
Project Architect

Kevin Schultz
Designer

Robert Macholl
Structural Engineer

Joel Altland
Mechanical Engineer

Jack Barrett
Electrical Engineer

Client
Painesville Township Schools
(216) 352-0668

Grade span
6-7

Current building capacity
750

Current building area
90,000 square feet

Building area before addition/renovation
50,000 square feet

Total project costs
$2.7 million

Cost per square foot
$68

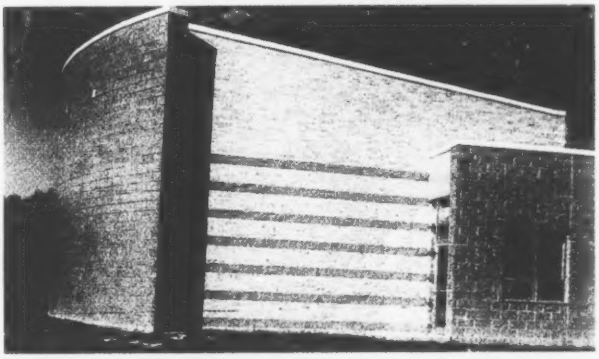
Space per student
120 square feet

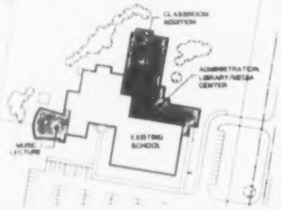
Cost per student
$ 8,200

Completion date
June 1995

This 40,000-square-foot, 16 classroom addition for the Auburn Middle School was a long-awaited element in the district's plan for reorganization. Coupled with a new library/media center, choral/lecture hall, and administrative offices, the school adequately accommodates 750 students.

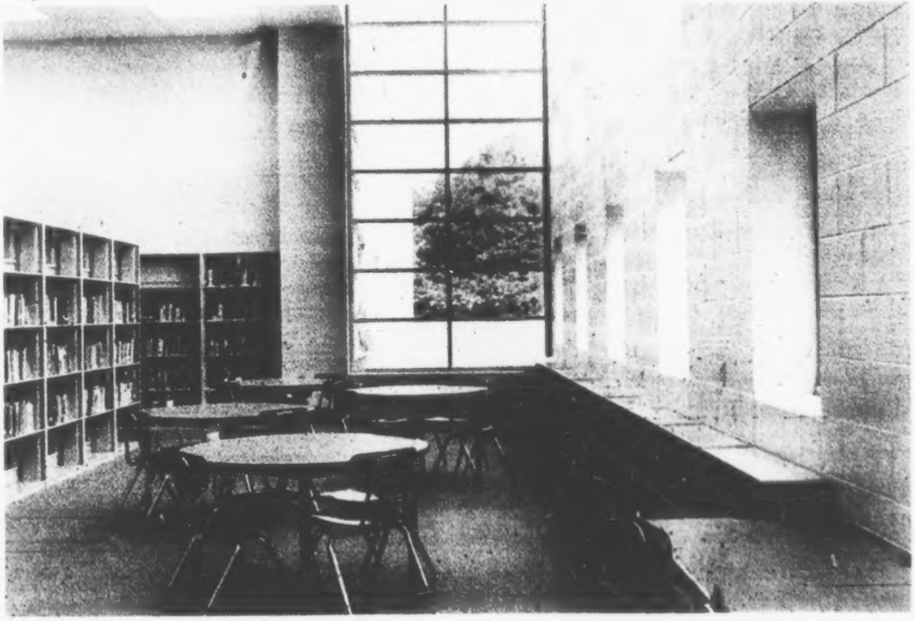
The design utilizes simple forms placed within the context of the existing building. Similar materials and color scheme were used, resulting in a contextual, well-balanced composition. ■


Exterior

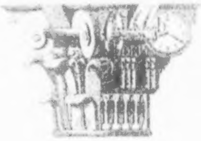


Site plan

Interior


Interior

MIDDLE SCHOOLS
New Construction



CASTAIC MIDDLE SCHOOL CASTAIC, CALIFORNIA

Carmichael-Kemp, Architects

Carmichael-Kemp, Architects
2870 Los Feliz Place
Los Angeles, CA 90039
Tamara J. Schaeffer
(213) 666-1265

Design team
Tamara J. Schaeffer
Principal/Design
Mark K. Kemp
Principal/Management
J. Clark Garrett
Project Architect
Thompson & LaBrie
Structural Engineers
Pacific Engineers Group
Electrical Engineers
Albert Chu & Associates
Mechanical Engineers
Robert Shryock
Landscape Architect

Client
Castaic Union School District
(805) 257-0551

Grade span
6-8

Current building capacity
900

Current building area
86,975 square feet

Total project costs
$15.1 million

Cost per square foot
$173

Space per student
96 square feet

Cost per student
$16,750

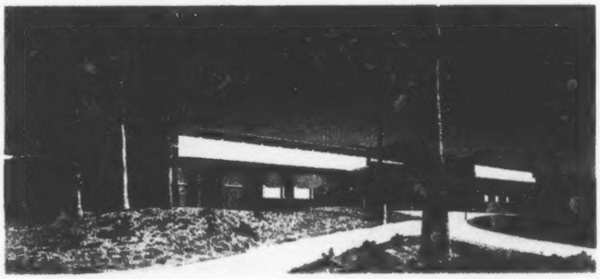
Completion date
September 1996

The new design enhances Castaic Middle School's teaching philosophy, an award-winning approach based on educational principles outlined in *Caught in the Middle*, a California Department of Education publication. This reformed teaching approach addresses transitional concerns that a middle school-age child may have by assigning children to smaller and more intimate core pods of teachers and rooms within the larger school framework. In each pod, students and teachers work in a collaborative manner. This active learning results in greater interaction and an increased focus on the individual needs of children.

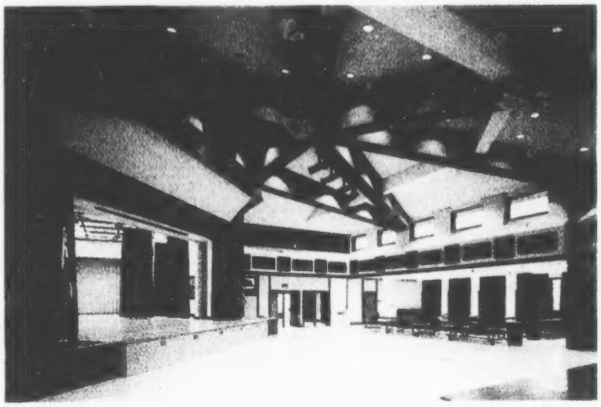
Each 7th and 8th mixed-grade pod consists of four adjacent classrooms and a science lab. Students receive all their core curricula within their pod. Movable walls between classrooms allow for interdisciplinary teaching opportunities. Each classroom is wired to support several computer workstations and each pod has a centrally located workroom providing needed alternative space for staff planning, small-group instruction, and peer tutoring.

Each pod has access to supplemental classrooms and labs designed to accommodate explorations in art, music, performing arts, home economics, and technology. Each pod's computers are wired to a school-wide network that includes the library and its adjacent applied technology labs.

The overall layout of the school suggests the critical role science and technology will play in these children's and the community's future.



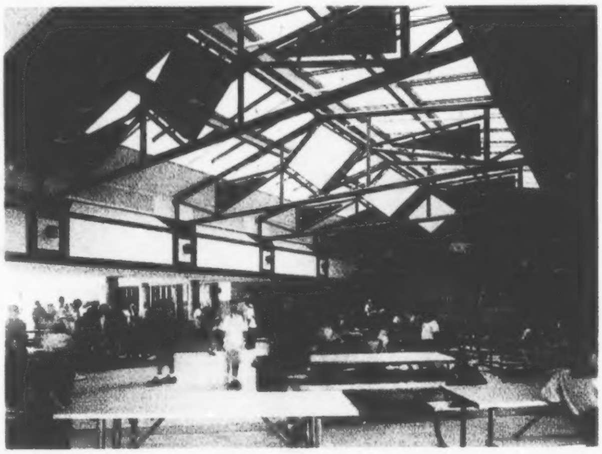
Exterior



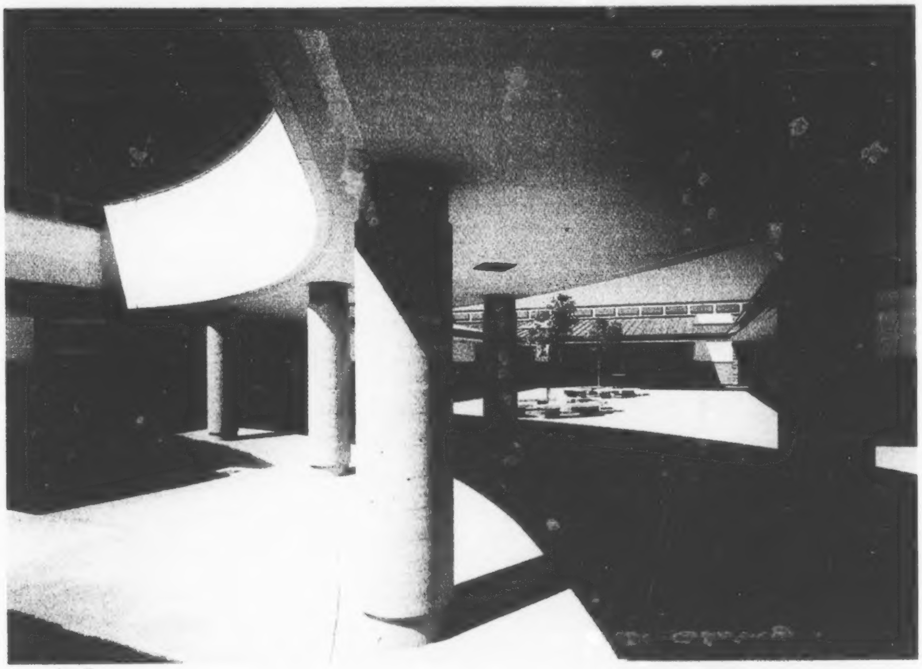
Multipurpose Room

In the interior of the school, the pods are arranged in an axial manner around the science labs, underscoring the central importance of the school's science program to the core curricula.

The architects have placed the more public and formal spaces toward the front of the campus. The large covered outdoor dining commons sit-

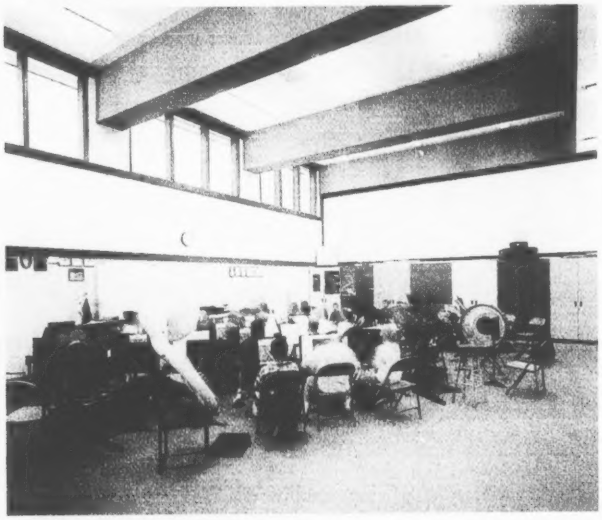


Interior



Covered walkway

Site plan



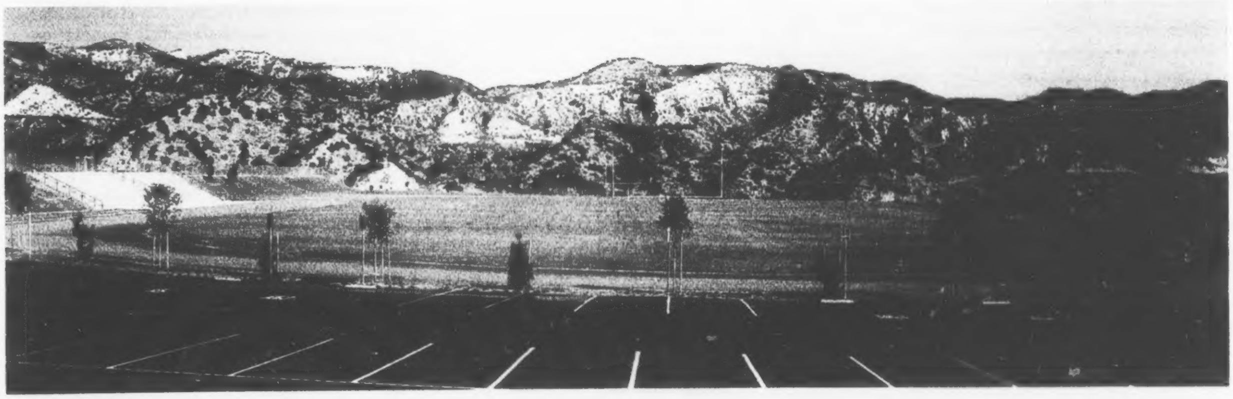
Music classroom

uated next to the multipurpose room reinforces the ideals of student-centeredness and school culture and provides a safe backdrop for students to interact with the community. The design allows for the perimeter of the school to be secured without denying access to these more public spaces like the library, multipurpose room, gymnasium, and playing fields.

A series of landscaped courtyards link these more formal zones with the more intimate zones of the campus and allow for outdoor teaching spaces and casual interaction. These courtyards, reminiscent of mission-style architecture, provide critical wind protection and address this site's particular design challenge nicely.

The school is equipped with economizers on all HVAC units, an energy management system with bypass timers for after-hours individualized use, occupancy sensors for classroom lighting, glare-reducing tinted glass, R-30 insulation at roofs and R-19 at walls, and 9-foot overhangs.

Materials were chosen for their ability to age gracefully and resist vandalism. Colors and graphics emphasize school identity and pride. A scored, split-faced, concrete block veneer wainscot provides a durable material at high-traffic areas. The standing-seam metal roof and built-up composition roofing provide for 20-year life expectancy. It is our hope that this facility will remain timeless in style. ■



Track and field area

MIDDLE SCHOOLS
Renovations/Additions

DERBY AND BERKSHIRE MIDDLE SCHOOLS BIRMINGHAM, MICHIGAN

TMP Associates, Inc.

1997 ARCHITECTURE AWARD WINNER LEARNING BY DESIGN

TMP Associates, Inc.
1191 W. Square Lake Road
Bloomfield Hills, MI 48302

John J. Castellana, FAIA
(810) 338-4561

Design team
John J. Castellana, FAIA
Doug Horner, AIA
Rich Bracci, PE

Giffels Hoyem Basso
Technology Consultants/Engineers

Client
Birmingham Public Schools
(810) 206-3000

Grade span
6-8

Current building capacity
Derby: 800; Berkshire: 800

Current building area
Derby: 136,840 square feet;
Berkshire: 149,700 square feet

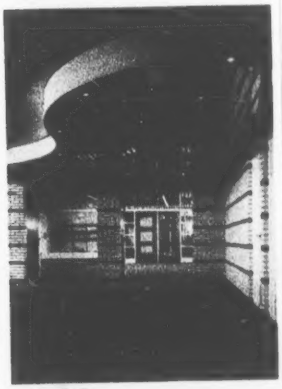
Building area before addition/renovation
Derby: 122,200 square feet;
Berkshire: 141,600 square feet

Total project costs
Derby: $5.31 million; Berkshire: $3.44 million

Space per student
Derby: 171 square feet;
Berkshire: 187 square feet

Cost per student
Derby: $4,838; Berkshire: $3,140

Completion date
August 1995



Derby/hallway

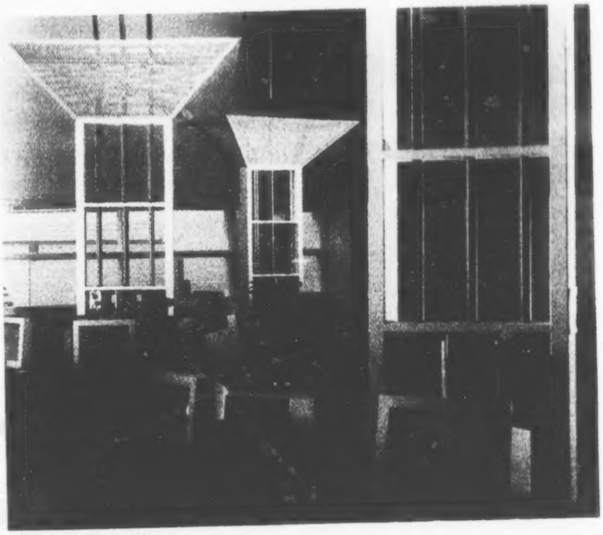
The design of the new Interactive Tech Centers at Derby and Berkshire middle schools responds to several major objectives.

The centers provide a stimulating, flexible environment to reinforce the Birmingham Public Schools' commitment to integrated learning in technology, math, and science.

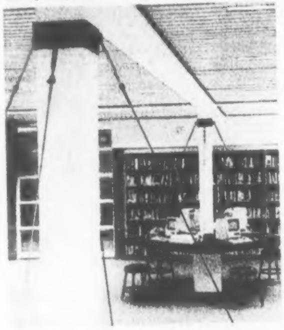
- They foster teaming.
- They utilize emerging technology both as a design and stimulation tool.
- They are designed to be the "symbolic focus" of integrated curriculum at the schools.

At Berkshire Middle School, emphasis was placed on expanding and improving the media center, developing faculty team planning centers, creating independent and group multimedia computer areas and improving science.

At Derby Middle School, attention focused on creating a dynamic, integrated Tech Center for research, design, and prototype fabrication. This facility features a new "front door" with a gently curving facade that encloses two major activity areas. Upon entering, generous two and three dimensional display space provides an opportunity to show off exciting student projects. Special lighting, floor, and ceiling finishes are incorporated to help reinforce this image.



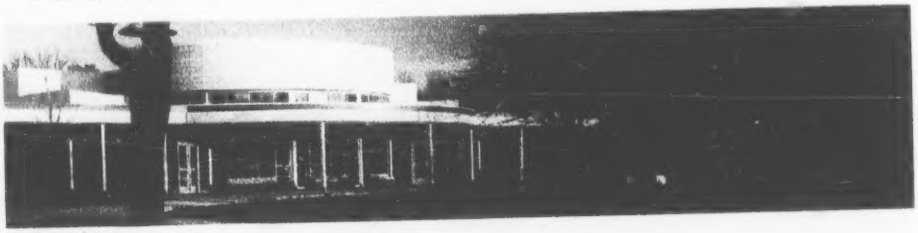
Derby/service modules



Berkshire/info ports

Both facilities feature flexible lab areas, including movable work centers supported with the proper utility services to facilitate a variety of exploration. Student project storage space, as well as other support areas, provide comprehensive facilities. High ceiling spaces flooded with controlled glare-free natural light give the space an upbeat, stimulating interior environment. Contiguous new classroom instructional areas provide the opportunity for small and large group interdisciplinary curriculum.

The exteriors are built with steel framing at additions; and brick and limestone precast concrete walls and glass in aluminum framing. The interiors are built with concrete masonry walls/painted; carpet and vinyl tile floors; and acoustical lay-in, metal slat, and exposed construction at ceilings. Special features include: custom designed service modules at tech areas; fully integrated instructional technology system; and new "front door" enhanced images. ■



Berkshire/exterior

MIDDLE SCHOOLS
New Construction

EAGLE RIDGE JUNIOR HIGH SCHOOL SAVAGE, MINNESOTA

Wold Architects and Engineers

Wold Architects and Engineers
6 West Fifth Street
St. Paul, MN 55102
(612) 227-7773

Design team
Kevin P. Sullivan, AIA
Principal-in-Charge

Eric B. Linner, AIA
Project Manager

Client
Burnsville-Fagan-Savage ISD #191
(612) 707-2000

Grade span
7-9

Current building capacity
900

Current building area
130,000 square feet

Total project costs
$13 million

Cost per square foot
$100

Space per student
144 square feet

Cost per student
$14,444

Completion date
July 1996

Wold Architects and Engineers, in cooperation with Burnsville-Eagan-Savage School District #191, has completed the design for the new $13 million Eagle Ridge Junior High School in Savage, Minn. The new facility, which departs in philosophy from the district's previous two junior high schools, will support a middle school curriculum. Architecturally, this meant creating more openness to encourage grouping and regrouping of students within the educational environment.

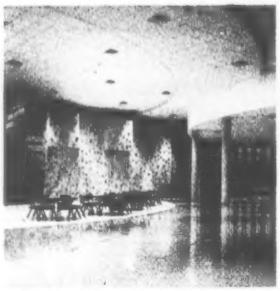
The interdisciplinary teaching philosophy uses the "house" concept, organizing six "houses" along a curvilinear "street." Running parallel on the other side are specialized labs, a media center, and staff center.

Most of the educational spaces emphasize flexibility to encourage integration and teaming. Retractable walls and an adaptable space layout provide for such multiple usage. The physical education areas and commons compose the remainder of the building, the latter being the "hub" from which all components generate.

The design calls upon color and texture of materials to create movement and provide visual cuing of the building's components and systems. The facility itself becomes a tool for each student's exploration.

The 130,000 square foot school was completed in July 1996. ■

Central stairwell connecting houses


Cafeteria/multipurpose room

House concept/reflection

Site plan

MIDDLE SCHOOLS
New Construction

EAGLE RIDGE MIDDLE SCHOOL MOUNTAIN VIEW MIDDLE SCHOOL RIO RANCHO, NEW MEXICO

John Friedman, AIA Architect, PC

John Friedman, AIA Architect, PC
P.O. Box 328
Los Lunas, NM 87031
John Friedman, AIA
(505) 865-0111

Design team
John Friedman, AIA
Principal

Ray Trujillo, AIA
Project Architect

Richard Bray
David Kurland
Michael Little
Construction Documents Team:

Client
Rio Rancho Public Schools
(505) 896-0667

Grade span
6-8

Current building capacity
900

Current building area
125,000 square feet (each school)

Total project costs
$17.2 million (total project)

Cost per square foot
$69

Space per student
139 square feet

Cost per student
$9,590

Completion date
August 1996

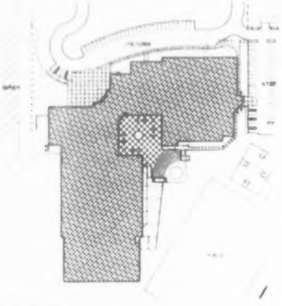
Eagle Ridge Middle School and Mountain View Middle School in Rio Rancho, N.M., are based on a prototype design for 900 students, adapted for two sites in the fast-growing Rio Rancho Public School District.

The prototype is formulated around three eight-classroom/two-lab academic pods. Each pod contains space for staff planning, conferencing, workroom, and tutorials. The pods facilitate interdisciplinary teaching teams and a small-scale learning environment.

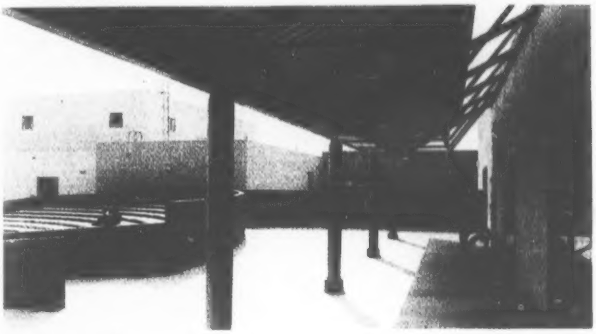
The educational program is enriched with an exploratory pod that includes a computer lab, a Tech 2000 lab, and foreign language, drama, art, and music spaces.

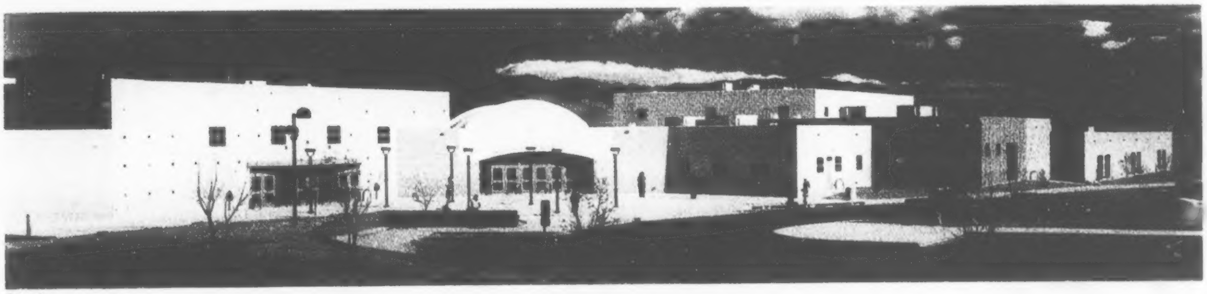
The design was adapted to the two sites by adjusting internal corridor ramps to the terrain. The two arms of the building radiate from a central student commons and envelop a large courtyard and amphitheater. The building design stresses natural light, capturing stunning views with large eight-foot square windows in each classroom. The entry commons is naturally lighted with a wide Kalwall dome.

The projects consist of a mix of site-cast tilt-up concrete, textured concrete block walls, and a steel bar joist roof. ■


Site plan

Commons


Student courtyard


Exterior

MIDDLE SCHOOLS
New Construction

FORESTWOOD MIDDLE SCHOOL FLOWER MOUND, TEXAS

SHW Group, Inc.

SHW Group, Inc.
4101 McEwen, Suite 300
Dallas, TX 75244

William T. Downs
(214) 701-0700

Design team
Gary Keep
Principal-in-Charge

Monte Zajicek
Project Manger

Don Hensley
Assistant Project Manager

Jim Estes, Estes McClure
MEP Engineer

Joe Craddock
Structural Engineer

Gene Rice, H. G. Rice
Food Service

Robert Howman, Ayers & Associates
Civil Engineer

Client
Lewisville Independent School District
(214) 539-1551

Grade span
6-8

Current building capacity
600

Current building area
87,208 square feet

Total project costs
$5.66 million

Cost per square foot
$65

Space per student
145 square feet

Cost per student
$9,425

Completion date
August 1993

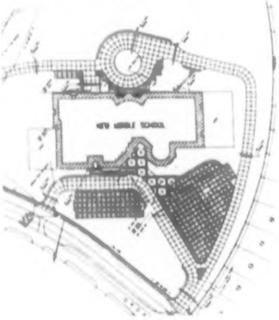
Cafeteria

Lewisville Independent School District is a rapidly growing school district. The educational program called for a middle school to house grades six through eight, initially for 750 students, but with an addition that would increase capacity to 1,100.

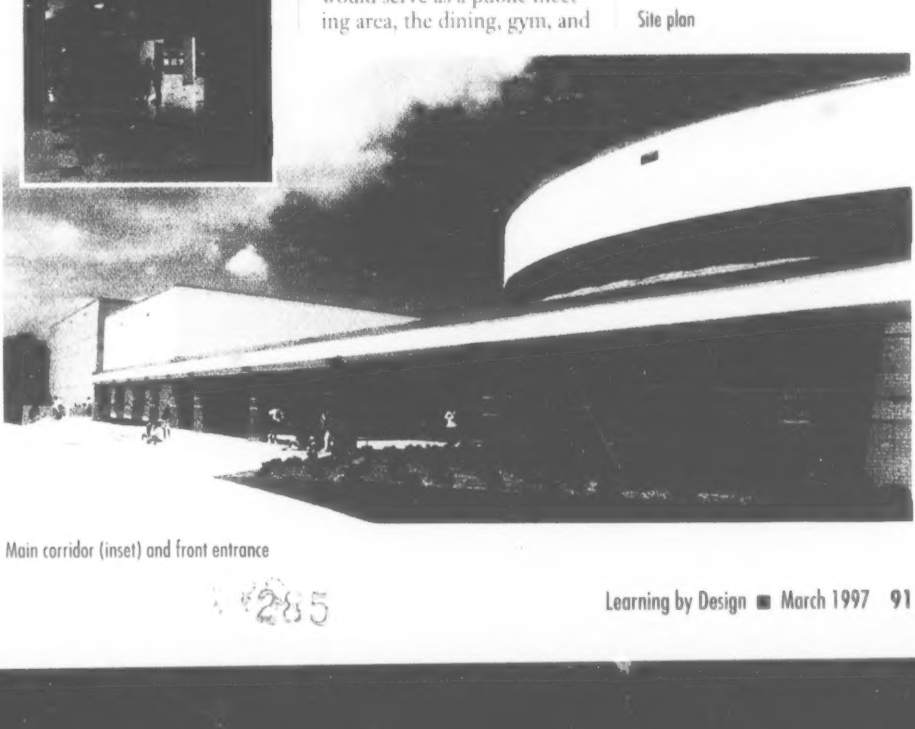
Providing for maximum flexibility, the architects chose a two-story solution allowing the project to be constructed on a small, even site. Phase 1 included administrative spaces, media center, dining and kitchen areas, the band and choir hall, a gymnasium with dressing rooms, and classrooms for 750 students. Phase 2 called for additional classrooms and gymnasium space with a weight room facility. The additions were planned so that construction would not disrupt the operation of the school.

The building is durable and functional, and the atmosphere in the building was enhanced by using low cost methods such as providing free-form interior non-load bearing walls and utilizing generous amounts of color in common areas. The compact and rectilinear nature of the building contributed to a very low initial cost.

Anticipating that the school would serve as a public meeting area, the dining, gym, and music spaces were located so these facilities could be accessed without disturbing the classrooms. ■



Site plan



Main corridor (inset) and front entrance

MIDDLE SCHOOLS
Renovations/Additions

FAIRHAVEN MIDDLE SCHOOL BELLINGHAM, WASHINGTON

ARA Architects

ARA Architects
1609-A Broadway
Bellingham, WA 98225

Roger Axelson
Mike Rayburn
(360) 671-0933

Design team
Roger Axelson
Principal/Project Architect

Michael Luelloff
Douglas MacLean
Assistant Architects

Goedeke Engineering
Structural Engineers

Gregg Goedeke
Project Engineer

Anvil Corporation
Mechanical Engineers

Steven Wright
Project Engineer

Travis, Fitzmaurice Associates
Electrical Engineers

G.F. Fitzmaurice
Project Engineer

Client
Bellingham School District
#501
(360) 676-6500

Grade span
6-8

Current building capacity
700

Current building area
89,333 square feet

Building area before addition/renovation
81,380 square feet

Total project costs
$9.29 million

Cost per square foot
$104

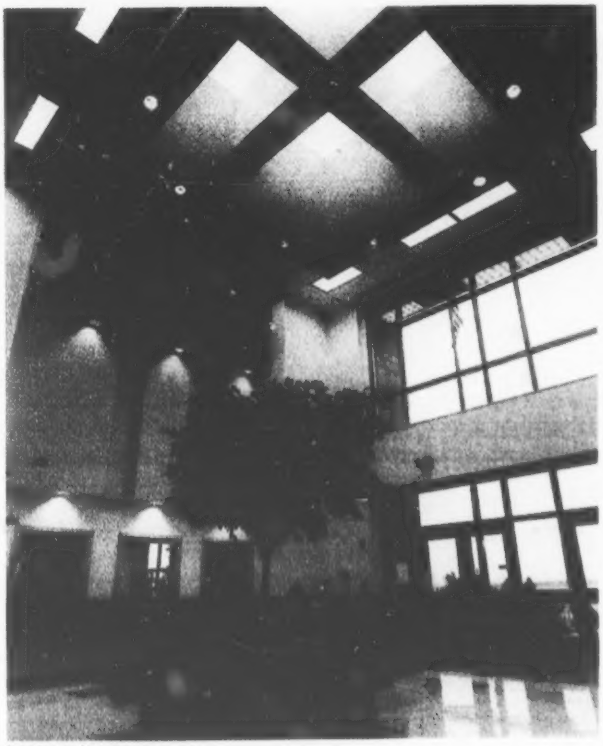
Space per student
128 square feet

Cost per student
$13,270

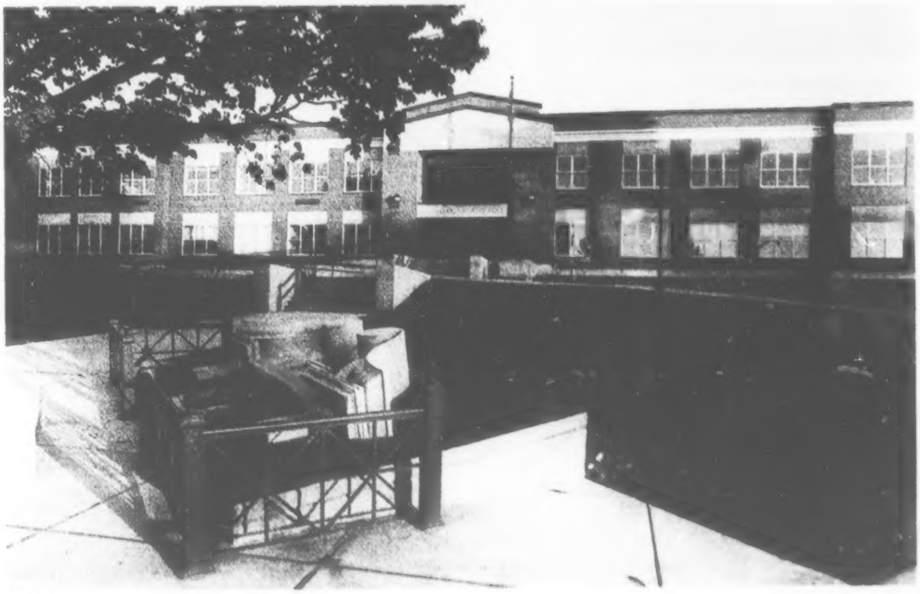
Completion date
September 1995

Bellingham School District recently challenged Architect Roger Axelson to renovate Fairhaven Middle School without compromise to the educational program nor its traditional architectural style. Construction work had to be performed during the school session, and neighborhood concerns had to be incorporated into the design.

Fairhaven Middle School consisted of six individual buildings built between 1920 and the early 1960s. Since it was an older school in an established residential neighborhood, there was strong community attachment to the traditional facade. Over time, additional buildings added space but lost functional relationships. The library was remotely located, and the gymnasium and physical education spaces were split between separate buildings. Facilities did not include a student as-

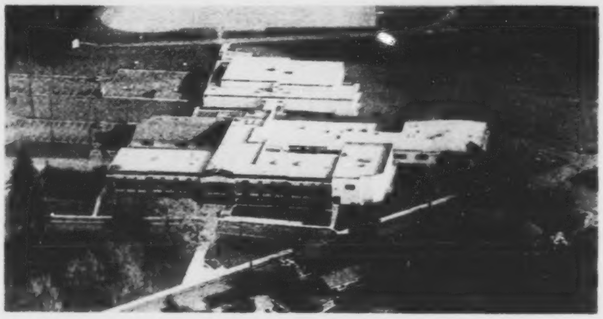


Interior main entrance

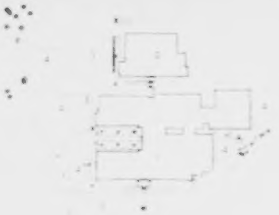


Exterior

Concourse corridor



Aerial



Site plan

sembly space nor a central area for informal socializing.

Twenty-eight concepts for space reorganization were narrowed down to six and presented to the school board and community. The best elements of each concept were incorporated into the final design solution, which included a complex program of selective building demolition, construction of several building additions, and the complete remodeling of remaining spaces.

Five existing buildings were combined into a single structure. A new entry lobby and concourse corridor were added, joining four of the existing buildings. A two-story addition next to the new lobby provided new school offices, support space, and classrooms while mirroring the existing brick facade. A classroom addition joined a fifth building. The sixth building was expanded to consolidate PE programs. The 1920 gymnasium was converted to a student commons/cafetorium. The library was centrally relocated to the former music space by adding a new music department.

Innovative three-dimensional planning was required to resolve accessibility problems associated with a hillside site. An elevator at the entry lobby connects the lowest and highest floor levels, while remaining floors are interconnected by ramps. Fourteen interfaces between new and existing construction required thoughtful research into older buildings and existing conditions, and careful preparation of exacting construction documents.

New construction materials include light wood framing, structural steel, custom manufactured brick, stucco, "Dryvi" exterior insulation finish system, gypsum board, plaster, carpet, and vinyl. All spaces were wired for a complete LAN computer network supporting up to 15 computers in every classroom, including video broadcast capability with individual classroom monitors.

Heating is provided by modular high-efficiency, gas-fired boilers and a variable-temperature circulating heating water loop with DDC temperature controls.

The completed project has received overwhelming support and comment from students, staff, and the community. One parent was heard to comment, "Our kids have the best of the best." Fairhaven Middle School is designed for the future with strong links to the traditions of the past. ■

Library

Classroom

MIDDLE SCHOOLS
New Construction

HELEN-TYSON MIDDLE SCHOOL J.O. KELLY MIDDLE SCHOOL SPRINGDALE, ARKANSAS

Wittenberg, Delony & Davidson, Inc.

Wittenberg, Delony & Davidson, Inc.
320 West Capitol Avenue,
Suite 840
Little Rock, AR 72201

Jack F. See, Jr., AIA
(501) 376-6681

Design team
Jack F. See, Jr., AIA
Principal, Project Manager

Richard K. Alderman, AIA
Director of Design

Kristy Angyal, AIA
Design Architect

David L. Dyer, AIA
Project Architect

Miles Caswell
Contract Administrator

The Mehlburger Firm
Civil Engineers

Engineering Consultants Inc. (ECI)
Structural Engineers

Green Anderson Engineers
Mechanical & Electrical Engineers

R.W. Day Company
Food Service Consultants

Client
Springdale School District
(501) 750-8800

Grade span
6-7

Current building capacity
1,200 (each school)

Current building area
127,000 square feet (each school)

Total project costs
$16.17 million

Cost per square foot
$64

Space per student
106 square feet

Cost per student
$6,736

Completion date
August 1996

Springdale School District is experiencing an approximate 3.8 percent growth rate per year. In 1994, WD&D designed 254,000 square feet of new educational space, comprising two new middle schools—identical in form and size—for Springdale. They were completed simultaneously, with sixth grade occupying both schools the first year and seventh grade the second.

The Helen-Tyson Middle School is on a 30-acre site adjacent to the community's Randall-Tyson Athletic Complex. The J.O. Kelly Middle School sits on a 37-acre site serving new residential areas. To accommodate 1,200 students each, WD&D designed the buildings into four educational pods, each consisting of two five-teacher teams responsible for 300 students. The core includes all central services—administration, library, computer services, special education, music, and a cafeteria/commons area with a stage. The gymnasium is at the rear of the building along with home economics and art.

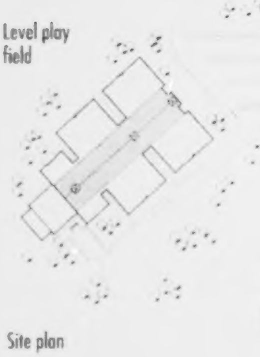
Compliant with available funding, the owner/architect team developed a two-phase construction schedule for minimum impact on the educational program and maximum emphasis on safety. While WD&D and the school district were planning the buildings, site preparation was undertaken. The Phase I ($9 million) construction contract followed, and both buildings were open for the 1995 fall term. A construction manager coordinated the Phase II ($7 million) construction contract, completed for the 1996 fall term. ■

Exterior

Library/media center

Welcome to Helen Tyson Middle School
Home of the Hornets

Main entrance interior



Site plan

MIDDLE SCHOOLS
Renovations/Additions

JACK LONDON MIDDLE SCHOOL
WHEELING, ILLINOIS

ARCON Associates, Inc.

ARCON Associates, Inc.
420 Eisenhower Lane North
Lombard, IL 60148

Glenn J. McGee
(630) 495-1900

Design team
Will Olson
Principal

Eric Olson
Project Architect

Dan Wesley
Project Engineer

Client
Wheeling Community
Consolidated School District 21
(847) 537-8270

Grade span
6-8

Current building capacity
750

Current building area
110,000 square feet

Total project costs
$7.69 million

Cost per square foot
$70

Space per student
147 square feet

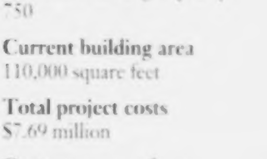
Cost per student
$10,160

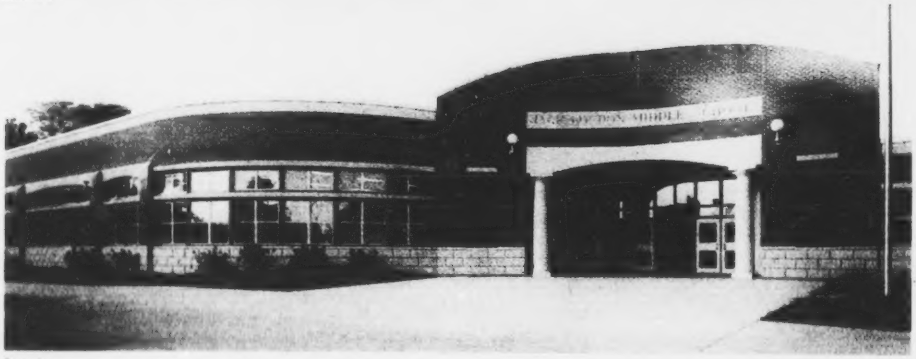
Completion date
August 1995

This 36-year-old school was updated to satisfy the community's desire to make improvements to the school's image and provide "cutting edge" technology for its students. These goals were accomplished through the major remodeling of 88,000 square feet of existing space and 21,000 square feet of new construction. Part of this $7.6 million project included a new entry and commons areas, library media center, gymnasium, and technology lab. The entire school is fully integrated for instructional technology, with monitors and computers in all classrooms. ■

Main entrance interior

Interior


Site plan



Exterior

MIDDLE SCHOOLS
Renovations/Additions

WILLIAM C. McGINNIS MIDDLE SCHOOL PERTH AMBOY, NEW JERSEY

Vitetta Group

Vitetta Group
642 North Broad Street
Philadelphia, PA 19130

Stephen Carlidge, AIA
(215) 235-3500

Design team
Stephen Carlidge, AIA
Principal-in-Charge

Jirair Youssefian, AIA
Project Designer

Lewis Myerson, AIA
Frank LoDolce, RA
Richard Sherman, AIA
Steve Hegeman
Architectural Team

Robert Felix, PE
Rick Piecara
Anthony Carango
Manuel Malgapo, PE
Warren Reuther
Engineering Team

Patrick Cuozzo
Construction Administration

Client
Perth Amboy Board of Education
(908) 826-3360

Grade span
7-8

Current building capacity
1,100

Current building area
149,000 square feet

Building area before addition/renovation
122,982 square feet

Total project costs
$16.13 million

Cost per square foot
$108

Space per student
135 square feet

Cost per student
$14,668

Completion date
July 1995

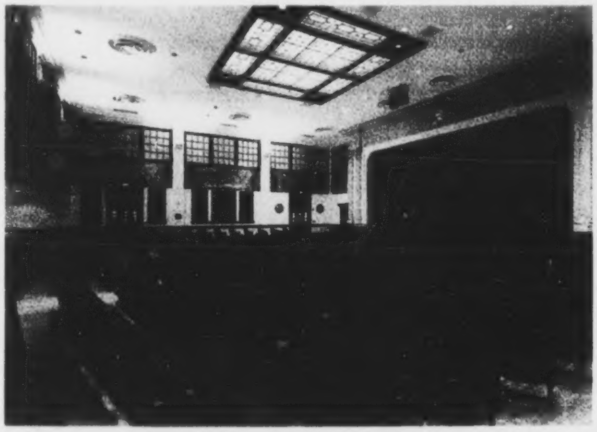
The alterations and additions to the William C. McGinnis Middle School in Perth Amboy, N.J., represent the most challenging component of the Perth Amboy Public School District's $70 million facilities upgrading project. The program demanded that the 1906 structure's total area be expanded by 33 percent—on a very dense urban site that yielded no opportunity for outward expansion. The building's capacity was increased, and new program demands were accommodated by filling in interior courtyards and relocating mechanical equipment to new rooftop structures. This arrangement, however, posed structural problems, and new, seismic-resistant steel had to be "threaded" down through existing construction to new footings/foundations.

Existing mechanical equipment spaces were totally transformed into academic program areas. All mechanical and electrical systems were gutted and replaced, yielding a totally air-conditioned facility that is ready to support the ever-increasing technological demands of a modern educational program.

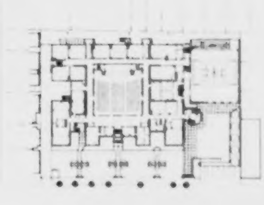
Window replacement, stone repair, and brick repointing have recaptured the original grandeur of the exterior, and art conservators have given new life to lobby sculptures and auditorium murals. ■

Exterior

Media center



Auditorium



Site plan

MIDDLE SCHOOLS
New Construction

MILL CREEK MIDDLE SCHOOL
DEXTER, MICHIGAN
Kingscott Associates

Kingscott Associates
229 E. Michigan Avenue,
Suite 335
Kalamazoo, MI 49007

Nancy Struck
(616) 381-4880

Design team
Susan Einspahr, ASID
Project Director

Charles Nelson, AIA
Project Manager

Sarah Haselschwardt, AIA
Design Architect

Mark Potter, AIA
Project Architect

Paulette Bentley, IIDA
Interior Designer

Edward Pfannes, PE
Mechanical Engineer

Brian Baratono
Electrical Designer

Client
Dexter Community Schools
(313) 426-4623

Grade span
7-8

Current building capacity
500

Current building area
90,000 square feet

Total project costs
$8.9 million

Cost per square foot
$99

Space per student
180 square feet

Cost per student
$17,800

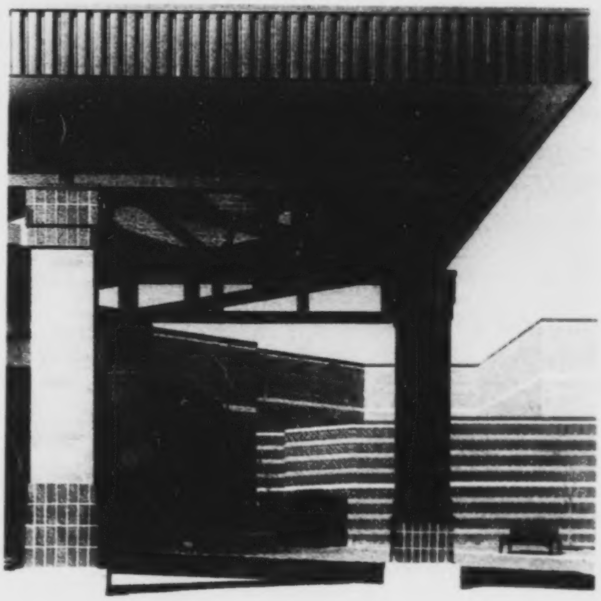
Completion date
August 1995

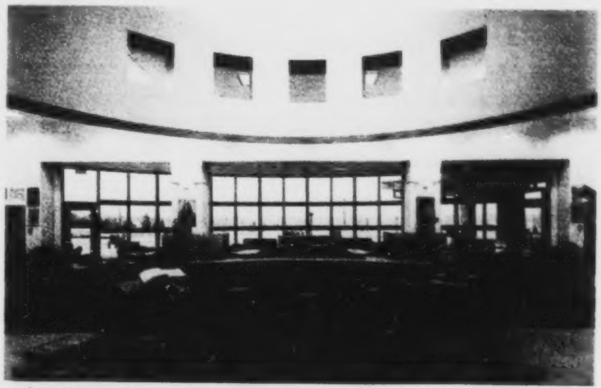
To provide flexibility for a growing district, Mill Creek Middle School was designed for an initial population of 500 students in grades 7-8, but can support a high school educational program, if needed, with classroom additions. The compact two-story plan requires minimum circulation, meeting owner needs as well as site constraints.

The plan is divided by one central corridor with classroom pods on one side and spaces for common activities such as art, technology, and life skills on the other side. The academic half of the corridor contains grade-designated pods made up of three identically sized classrooms with a computer lab in between and science labs at both ends. Classrooms are connected by movable partitions to provide flexibility. Pods also include rooms shared by staff teams.

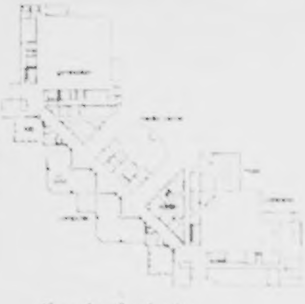
The building is anchored by the gymnasium and the cafetorium, with the media center in between. Music is adjacent to the cafetorium with stage access.

The school's site includes practice and competition ball fields, which are also used by community teams; and outdoor tennis courts and basketball courts. Mill Creek completed the district's K-8 campus complex. ■


Exterior entrance


Media center

Technical education classroom


Floor plan (first level)

MIDDLE SCHOOLS
New Construction

MOUNT MARKHAM MIDDLE SCHOOL WEST WINFIELD, NEW YORK

James Jordan Associates, Architects

James Jordan Associates, Architects
81 West Main Street
Richfield Springs, NY 13439
James M. Jordan, AIA
(315) 858-1820

Design team
James M. Jordan, AIA
Principal-in-Charge

S. Michael Steiger, AIA
Project Manager

David M. Green, AIA
Project Architect

Ralph W. Snell, AIA
Ronald F. Stafford, AIA
Darryl J. White, AIA

David J. Haggerty
Jonathan Hopwood
Steven M. Wickman

Client
Mount Markham Central School District
(315) 822-6161

Grade span
5-8

Current building capacity
344 (addition only)

Current building area
118,100 square feet

Building area before addition/renovation
77,300 square feet

Total project costs
$3.62 million

Cost per square foot
$89

Space per student
119 square feet

Cost per student
$10,530

Completion date
July 1996

Site plan

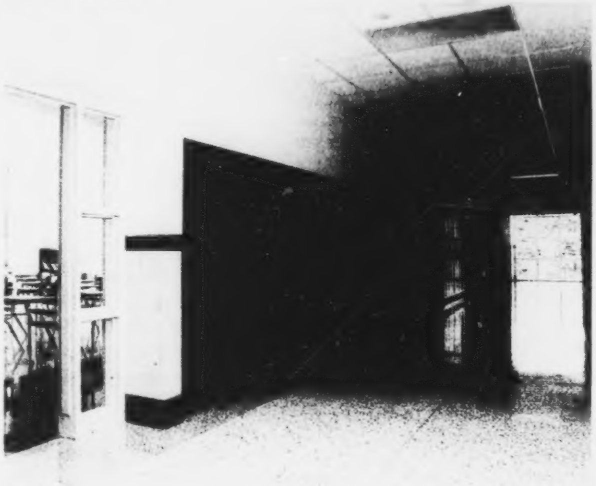
Facing increasing enrollment at secondary levels, voters in the Mount Markham Central School District approved the expansion and renovation of their existing middle school, increasing its size more than 50 percent.

Special education and recitation classrooms, a divisible gymnasium with spectator seating, locker rooms, a cafeteria, and a kitchen were all included in the two-story addition. Art, music, and technology areas in the original building were reorganized and upgraded.

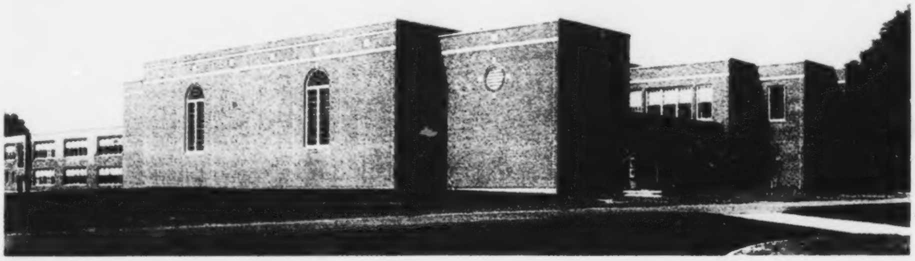
On the exterior, brick and limestone were used for continuity and harmony with the original 1930s building. Arched wood windows in the gymnasium echo those of the earlier structure. On the interior, prefaced concrete block wainscoting was used to replicate the original structural glazed tile work. Corridor floors are terrazzo, for long-lasting service, as in the earlier structure.

The addition's provisions for accessibility allow persons with disabilities to gain access to the original areas of the building. Life safety improvements include fire alarm and communications systems. Mechanical and electrical systems in the existing building were upgraded, and provisions for computer stations and networking were made throughout the addition. ■

Gym entrance enterior



Corridor



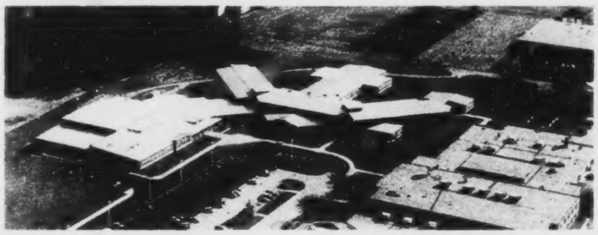
Gym exterior

MIDDLE SCHOOLS
New Construction

MOUNT VERNON MIDDLE SCHOOL MOUNT VERNON, OHIO

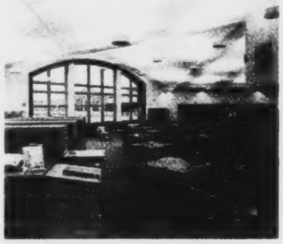
Marr Knapp Crawfis Associates, Inc.

On a sloped site adjacent to the 1960s high school, a new state-of-the-art middle school stands ready to meet the present and future educational needs of its community. Benefiting from the shared high school auditorium and sports complex facilities nearby, Mount Vernon Middle School focuses on the needs of sixth through eighth grade as well as the larger community.


Aerial

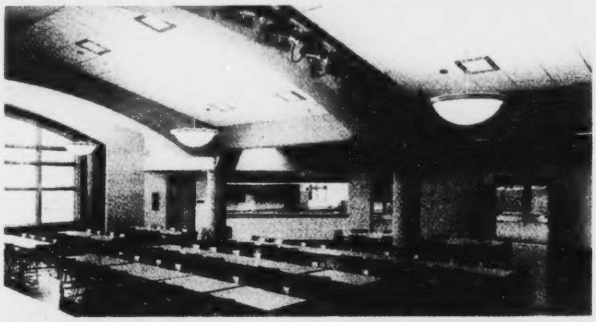
One and two-story academic wings radiate from a library/technology center; video, data, Internet, satellite, sound, and telephone services also radiate from this center to computers and televisions located in each educational space throughout the building. Technology labs adjacent to the library provide computer classrooms as well as research lab workstations for investigating industrial technology-related pursuits such as robotics, animation, and wind-tunnel testing. The sixth grade academic wing is designed specifically to enhance a "teaming" educational philosophy.

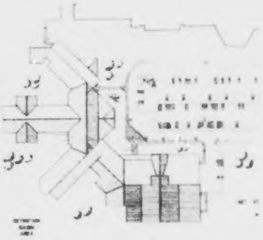
A second central space—the multipurpose cafetorium—is supported by a full-service dual-line kitchen, a concessionary counter, a school-supplies store, a theater-lighted stage, and a full-court gymnasium. Adjacent to the cafetorium/gymnasium are performance and practice spaces for orchestral, instrumental, choral, and general music.

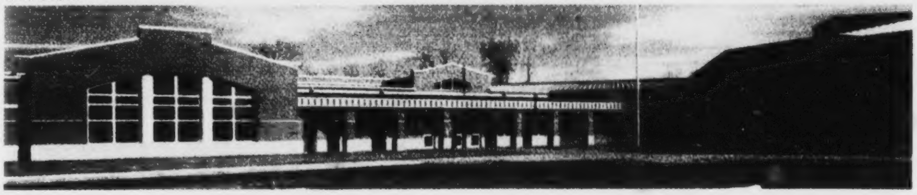

Library

The modern colonial styling of the new building respects the predominant contextual style of the city, particularly through its use of brick, stone water-table, and stone medallions. Specific materials were chosen for their durability, appearance, and warmth.

Energy-saving considerations and life-cycle costs are addressed throughout this structure. A computerized energy management system adjust energy use to actual occupancy loads, and an ice-bank system provides cooling at low, off-peak electrical rates. ■


Cafetorium


Site plan


Exterior

Marr Knapp Crawfis Associates, Inc.
380 North Main Street,
Suite 500
Mansfield, OH 44902
Daniel J. Obrynba
(419) 525-1102

Design team
Daniel J. Obrynba
Principal-in-Charge
Todd R. Wrobleski
Project Architect
Dan W. Yard
Structural Engineer
William D. Brown
Mechanical Design
Cynthia K. Murphy
Mechanical Design
Craig Christie
Electrical Engineer
Wendy J. Mullins
Interior Design
Robert F. Roth
Specifications
Brian J. Goodall
Construction Coordinator

Client
Mount Vernon City Schools
(614) 393-5933

Grade span
6-8

Current building capacity
1,250

Current building area
136,725 square feet

Total project costs
$11.3 million

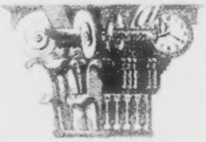
Cost per square foot
$83

Space per student
109 square feet

Cost per student
$9,069

Completion date
April 1996

MIDDLE SCHOOLS
New Construction



NEBRASKA CITY MIDDLE SCHOOL NEBRASKA CITY, NEBRASKA

Rambo Associates Project Management/RAPM

Rambo Associates Project Management/RAPM
406 South 12th Street, Suite 300
Omaha, NE 68102

Merle W. Rambo, AIA
(402) 346-3130

Design team
Merle W. Rambo, AIA
Principal-in-Charge

Wade D. Goehring, AIA
Project Architect

Christy Harris
Interiors and Furnishings

Purdy & Slack Architects
Associated Firm

Client
Nebraska City Public Schools
(402) 873-6033

Grade span
6-8

Current building capacity
475

Current building area
68,000 square feet

Total project costs
$3.5 million

Cost per square foot
$53

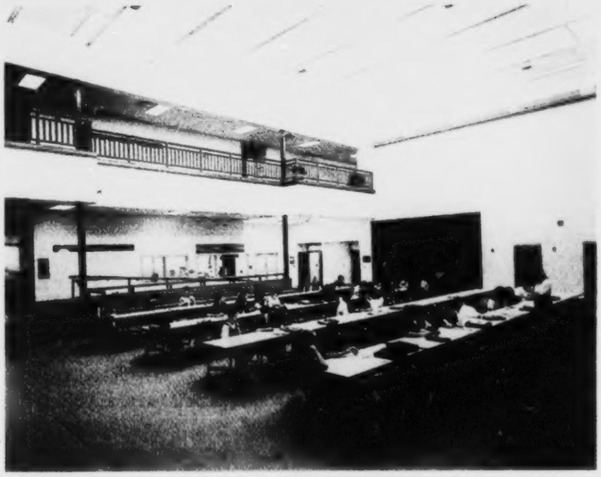
Space per student
143 square feet

Cost per student
$7,400

Completion date
January 1995

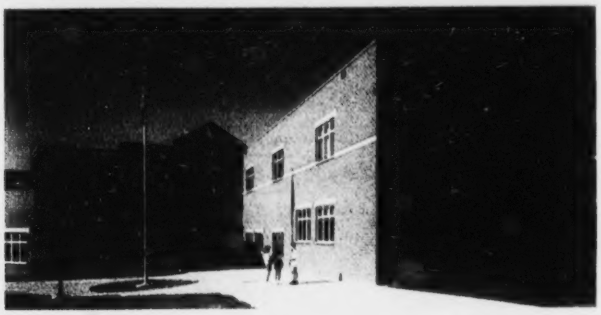
This unique school design incorporates a student team plan for educational delivery with effective blending of individual, small, and large group learning areas. Educational objectives included designing a facility to enhance the development of middle level education utilizing multidisciplinary teaming and full access to exploratory areas. Staff teams are housed in pods with adjacent team planning and support areas. Students have immediate access to core academic classrooms. Visually open design and clustered rooms allow for improved supervision and enhanced communications. Students freely move during the day in wide corridors that join exploratory class areas. A large, open commons off the entrance serves student and community activities. The community chose to contribute to revitalization of the central business district. The limited site suggested a two-story plan where each level is nearly self-sufficient for its teams' academic delivery needs. The durable masonry facility includes an advanced mechanical system with staged boilers and fuel efficient water source heat pumps. Extensive, flexible equipment for science, data cabling, and technologies were specifically designed with staff input to meet curricular objectives and enhance educational programs.

Media center



Commons

Unique, independent cost management systems produced exemplary quality at nearly 20 percent less cost than comparable regional facilities. ■



Exterior

Site plan

MIDDLE SCHOOLS
New Construction

OAKVIEW MIDDLE SCHOOL ANDOVER, MINNESOTA

Armstrong, Torseth, Skold & Rydeen, Inc.

Armstrong, Torseth, Skold & Rydeen, Inc.
4901 Olson Memorial Highway
Minneapolis, MN 55422

Paul Erickson
(612) 545-3731

Design team
Paul Erickson
Principal-in-Charge

Zack Johnson
Project Manager

Craig Hinrichs
Project Architect

Terry Stofferahn
Mechanical

James Riess
Electrical

Robert Gunderson
Landscape Architect

Thomas Hendrix
Project Designer

Clark Engineering Co.
Structural

Client
Anoka-Hennepin District #11
(612) 506-1105

Grade span
6-8

Current building capacity
1,050

Current building area
175,000 square feet

Total project costs
$15. 9 million

Cost per square foot
$91

Space per student
167 square feet

Cost per student
$15,098

Completion date
September 1996

This student- centered middle school curriculum is enhanced by interdisciplinary team houses organized in duplexes wrapping around team learning areas. Passive supervision is thus enabled for teamwork in small and large groups for a total of 1,050 students in six houses, plus one additional floating elective house.

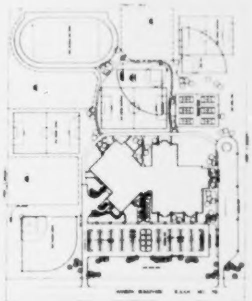
The master plan allows for an additional two houses for an ultimate 1,350 student population with supporting core facilities now in place. Technical education facilities provide individual learning stations responding to an exploratory middle school curriculum, including hydraulics, robotics, and aerodynamics, along with a mini-shop and video production facility for use by all curricula. A cafetorium space employing retractable bleacher seating opens to a performance area that can be partitioned for use as instructional space.

The building can be easily zoned to accommodate extensive use for community education which includes a swimming pool with separate community-designated locker room facilities. Technology is incorporated into each learning station and office area. Extensive use is made of natural daylight to assist interior illumination and mechanical systems incorporate the latest heat-recovery techniques. Safety is a high priority with physical separation of car and bus traffic areas. Playfields were created as "exterior rooms" carved into the surrounding forest area that also serves to create curriculum opportunities for the study of ecology. ■

Cafeteria/performance/instruction space

Entry hall

Exterior


Site plan

MIDDLE SCHOOLS
New Construction

NORTH ROYALTON MIDDLE SCHOOL
NORTH ROYALTON, OHIO
GPD Associates

GPD Associates
520 South Main Street,
Suite 2531
Akron, OH 44311

John C. Dodovich, AIA
(330) 434-4300

Design team
John C. Dodovich, AIA

Mark S. Salopek, AIA

Client
North Royalton City Schools
(216) 582-7225

Grade span
5-8

Current building capacity
1,600

Current building area
238,000 square feet

Total project costs
$18.7 million

Cost per square foot
$79

Space per student
150 square feet

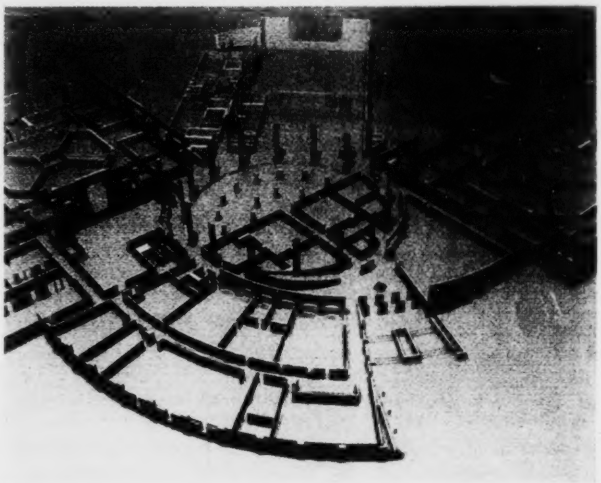
Cost per student
$11,695

Completion date
August 1996

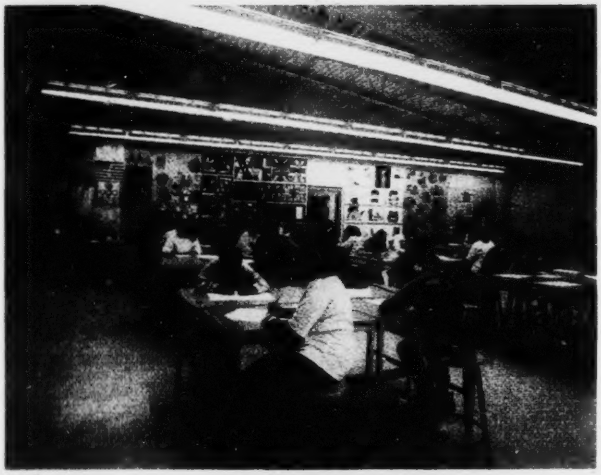
"We shape our buildings, thereafter they shape us."—*Sir Winston Churchill*

Operationally, the North Royalton Middle School embraces the fundamental concept of middle schools: team teaching. The two pods that flank the central core house the traditional academic classrooms. Within each pod are team-teaching areas composed of four classrooms with a shared triangular space for group education. The central cylindrical mass houses common facilities used by all grade levels. Flanking the main entrance are the fine arts wing and administration area. The gymnasium and multipurpose room complete the facility, together with their support areas and independent entrances.

Philosophically, the North Royalton Middle School reflects the community's history as well as its future, in terms of aesthetics. Historically, North Royalton owes its origins to two industries—stone quarries and lumber mills. Therefore, the design incorporates rough-hewn masonry, which appears cut away from granite-like surfaces to symbolize the importance of North Royalton's strong past,

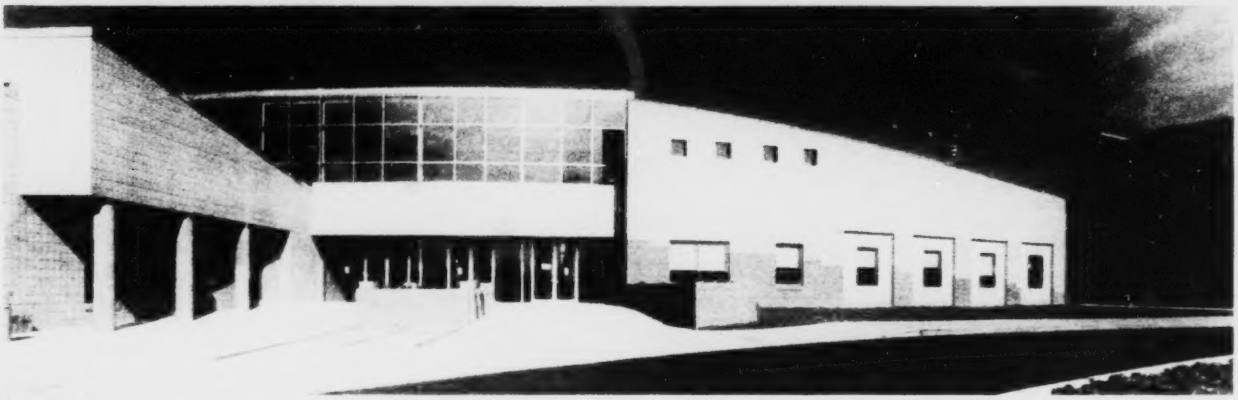


3-D

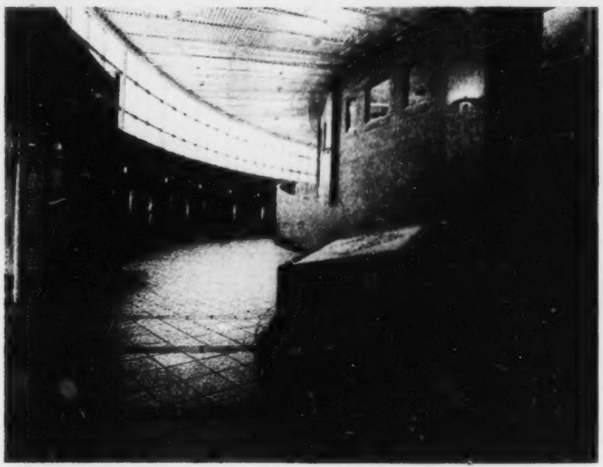


Art classroom

Exterior

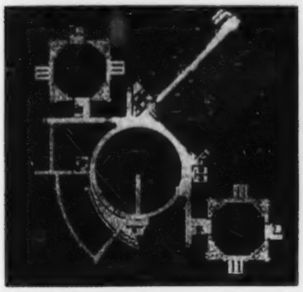


Entry exterior

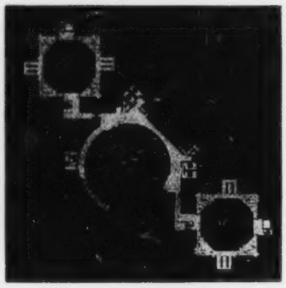


Gallery space

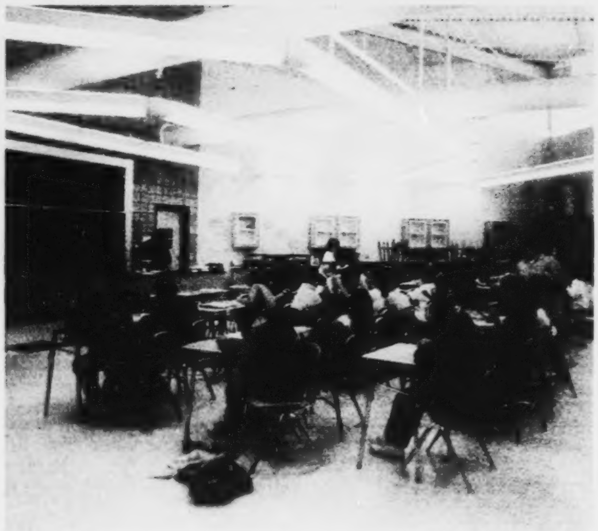
Media center



First floor



Second floor



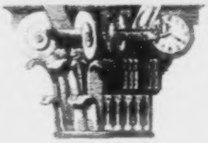
Science classroom

which gives opportunity to the future. This symbolic detail varies around the perimeter of the building to accentuate the suggestion that the cutting away is not complete. Metaphorically, this represents the concept of education as a work in progress, much as education is a lifelong process continually being refined like a diamond in the rough.

In addition, the central core makes historical reference to the historic gazebo that marks the center of town, thus creating an architectural dialogue between two structures of great importance to the community. The dynamic forms at the front entrance reference the sawtooth-roofed sawmill buildings, also a part of North Royalton's history. Additionally, the placement of the fine arts wing further establishes the commitment of the school's outreach to the community through art and humanities.

The traditional pods adopt a square form, symbolizing a strong, stable commitment to the fundamentals of education. Window openings vary in size, type, and proportion from traditional "punched" openings for the fifth grade, to the more "ribbon" type university fenestration, articulating the passage of time and a higher level of educational refinement. The sweeping shape of the main lobby captures and expresses the energy of the students. Banners, foretelling high school graduation, adorn the lobby, maintaining a vision of education as being beyond the confines of these walls. ■

MIDDLE SCHOOLS
New Construction



PEIRCE AND STETSON MIDDLE SCHOOLS WEST CHESTER, PENNSYLVANIA

L. Robert Kimball & Associates

L. Robert Kimball & Associates
21 West Washington Street
West Chester, PA 19380

A. Stevens Krug, AIA, PE, CEM
(610) 692-2232

Design team
A. Stevens Krug, AIA, PE, CEM
Principal-in-Charge

Thomas J. Woods, AIA
Project Architect

David L. Schrader, AIA
William S. Cox

Edward Kirkbride, REFP
Educational Consultant

Client
West Chester Area School District
(610) 431-7188

Grade span
6-8

Current building capacity
1,000 each

Current building area
130,857 square feet each

Building area before addition/renovation
90,000 square feet each

Total project costs
$15.25 million each

Cost per square foot
$116

Space per student
130 square feet

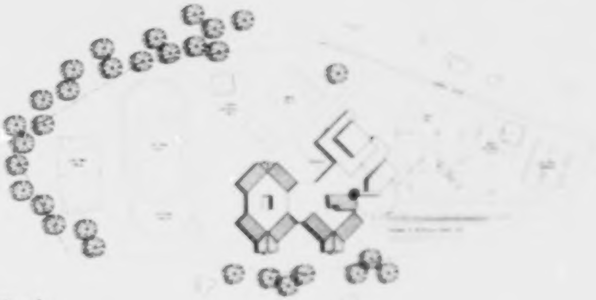
Cost per student
$15,250

Completion Date
September 1998

Kimball & Associates provided 16 alternative plans for upgrading district middle schools. Options ranged from renovations and alterations, costing $23 million, to the addition of new middle schools on hypothetical sites, for $35 million.

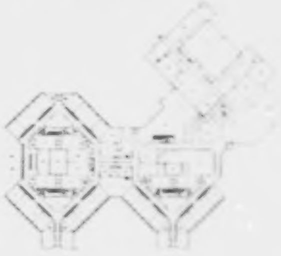
The school district property and finance committee elected to invest in the long term solution and chose a hybrid of the options, costing $30.5 million. Two new middle schools—107,730 square feet each—will be attached to the existing 23,127 square feet gymnasiums, which will be fully renovated.

During construction, the existing facilities will remain open and fully operational. Upon completion of the project, the existing 70,000 square feet of schools will be demolished, and the area will be reconfigured into a new parking area and athletic fields that serve both the school district and the surrounding community.



Site plan

In the design, Kimball will utilize the same floor plan for both G.A. Stetson Middle School and E.N. Peirce Middle School. Both schools, each having a capacity of 1,000 students, will house grades six, seven, and eight. Each grade will be divided into two teams with computer, conference, storage, and toilet facilities. A spine of educational support will be integrated so that resources and programs such as art, technology education, family and consumer sciences, languages, and the library media center may be shared among students. The extensive music program will be supported by three classrooms with full access to a stage. An auditorium with 500 seats will be used as a large group instruction area that will support active theater, arts, and community programs. ■



Floor plan

Exterior rendering

298

MIDDLE SCHOOLS
New Construction

SHOSHONE-BANNOCK JUNIOR/SENIOR HIGH SCHOOL FORT HALL, IDAHO

L.A. Olson & Associates, Inc.

L.A. Olson & Associates, Inc.
2526 Grand Avenue
Billings, MT 59102

Larry A. Olson, PE
Principal
(406) 656-2244

Design team
Mark A. Olson, AIA
Project Manager/Architect

Dennis Randall, PE
Rick Leuthold, PE
Civil Engineers

Steve Biordahl, PE
Structural Engineer

Wade Johnson, PE
Jerry Tillinger
Mechanical Engineers

Jim Orr
Electrical Engineer

Client
Bureau of Indian Affairs
(505) 766-2823

Grade span
7-12

Current building capacity
400

Current building area
58,000 square feet

Total project costs
$10.5 million

Cost per square foot
$115

Space per student
145 square feet

Cost per student
$16,100

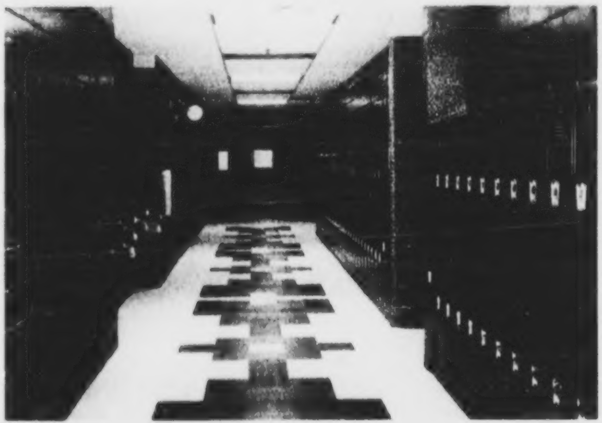
Completion date
October 1996

In November 1992, the Bureau of Indian Affairs in Albuquerque, N.M., awarded the commission for the design of a new 404-student junior/senior high school to L.A. Olson & Associates, Inc. of Billings, Mont. The Shoshone-Bannock Jr./Sr. High School is located on the Fort Hall Indian Reservation in Fort Hall, Idaho. The following points focus on the design criteria maintained throughout this project.

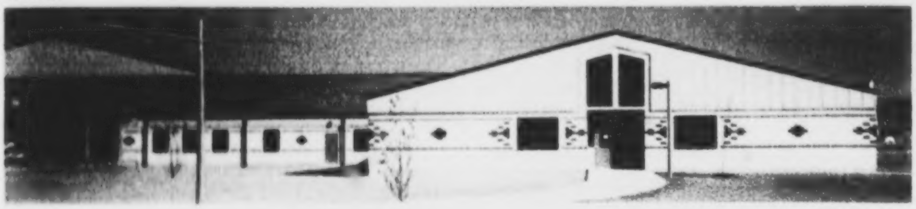
- ■ Community members and students worked with a design competition committee on floor/wall designs and the architect provided refinement so their designs could be placed within tile pattern limitations.
- ■ The white school facade was chosen to blend with the surrounding area and the school colors of red, black, and white were incorporated throughout the interior and exterior of the building.
- ■ Native American bead work patterns were incorporated in the exterior wall finish using red, white, and black brick.
- ■ A log structure at the entry was designed to relate to the early log dwellings used by tribal members and also provide a strong visible entrance to the facility.

Our hope is that the new facility will provide a great learning center for the students of the Fort Hall Indian Reservation for many years to come. ■

Interior


Corridor

Site plan


Exterior

MIDDLE SCHOOLS
New Construction

SOUTHWEST MIDDLE SCHOOL BALLWIN, MISSOURI

Wm. B. Ittner, Inc.

Wm. B. Ittner, Inc.
611 N. Tenth Street, Suite 200
St. Louis, MO 63101

Robert O. Little, AIA
(314) 421-3542

Design team
Robert O. Little, AIA
Principal-in-Charge/Principal Designer

Marty Collier
Project Manager

Jim Cockrell
School Principal

Client
Parkway School District
(314) 415-7300

Grade span
6-8

Current building capacity
1,200

Current building area
145,000 square feet

Total project costs
$12 million

Cost per square foot
$83

Space per student
121 square feet

Cost per student
$10,000

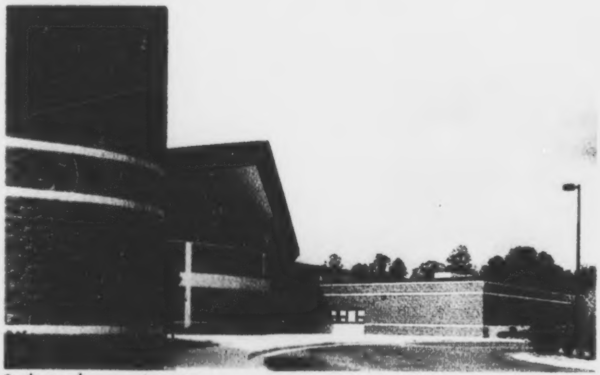
Completion date
Fall 1995

The challenge was to create a unique learning environment for a new prototypical middle school that integrates with the existing elementary and high school campus. The solution was to nestle the 145,000 square-foot school into the surrounding woods, using the natural site features as an extension of the building.

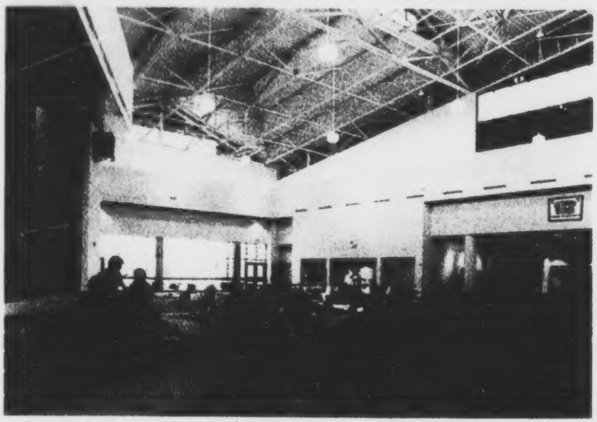
Designed to meet the specific needs of the middle school's instructional program, grades 6-8 are organized in "houses." Each grade level has its own identify through three distinct building segments. The three houses form a U-shaped configuration around shared specialty areas such as the library, foreign language lab, and industrial technology lab. The unique color schemes and smaller scale of the houses help to create a sense of community, making the 1,200-student school feel more intimate.

Skylights and clerestory windows provide natural light throughout the building, creating an open, airy learning environment. A 12,000-square-foot student commons area serves as the entrance to the school, lunchroom, auditorium, and community-use space. The commons extends through the building onto an outdoor terrace, which overlooks the garden ponds, rock-outcroppings, and woods used for the school's exploratory learning program.

Through the incorporation of the natural site features, the new facility stimulates learning in an inviting, nurturing, and child-centered environment. ■


Student and community entry

Library/media center


Multiuse student commons

Southwest Middle School
Wren Hollow Elementary
South High
Site plan

MIDDLE SCHOOLS
New Construction

SYLVANIA TIMBERSTONE JUNIOR HIGH SCHOOL SYLVANIA, OHIO

Stough and Stough Architects

Stough and Stough Architects
4246 Sylvania Avenue
Toledo, OH 43623

Craig A. Stough, AIA
(419) 473-2751

Design team
Craig A. Stough, AIA
Principal-in-Charge

Mary L. Glowacki, AIA
Project Architect

Robert E. Stough, AIA
Specifications

Client
Sylvania Schools
(419) 885-7900

Grade span
6-8

Current building capacity
700

Current building area
103,100 square feet

Total project costs
$9 million

Cost per square foot
$87

Space per student
145 square feet

Cost per student
$12,857

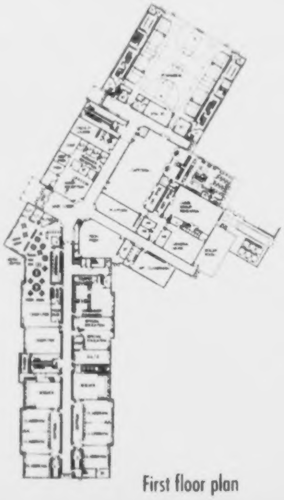
Completion date
August 1997

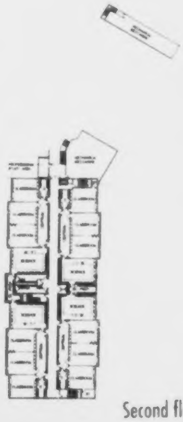
The educational specifications called for a classroom arrangement usable as a traditional junior high school and adaptable to middle school core classroom clusters in the future. In response, our design created six clusters of classrooms—each with a science classroom and three traditional classrooms. All classrooms are individually accessible from the main corridor, but also connected together with a Centrum or small group classroom for internal circulation and computer studies. Teacher offices and science preparation rooms are included in each cluster.

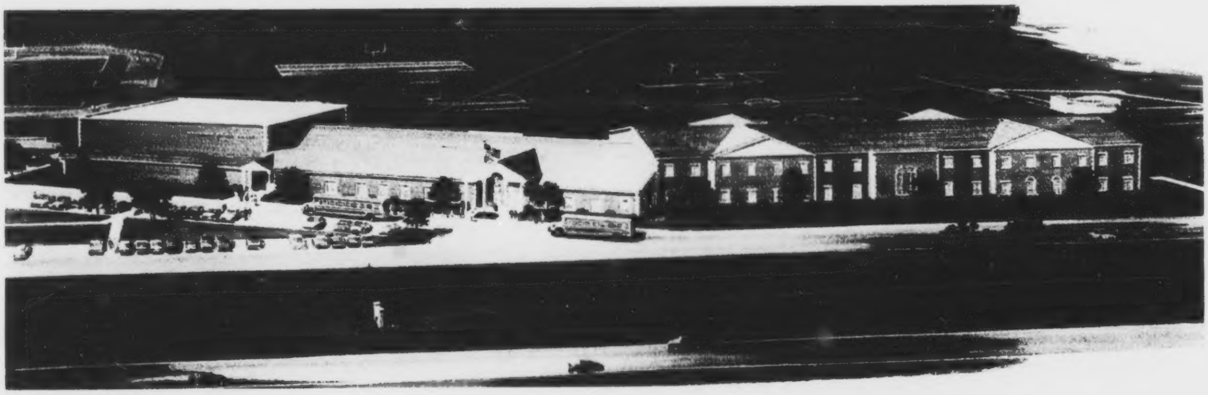
Building security for after school hours activities was also an important design consideration. The building layout provides for two levels of limited building access controlled by gates and internal doors, and each providing conforming fire exit routes. After hours occupants can be limited to the gymnasium and locker rooms only or gymnasium, cafeteria, art room, tech prep, and music suite only. The two-story classroom wing can be secured from the remainder of the building.

Federalist style architecture was chosen by the board of education to reflect the traditional values of the community. Sand mold face brick, limestone quoins and lintels, columned entrances, white aluminum trim, and shingled roofs were all chosen for their long life and low maintenance. ■

Site plan

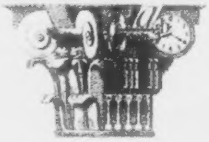

First floor plan


Second floor plan


Exterior rendering

BEST COPY AVAILABLE

MIDDLE SCHOOLS
New Construction



HARRY S. TRUMAN MIDDLE SCHOOL
FONTANA, CALIFORNIA
tBP/Architecture

ARCHITECTURE AWARD WINNER

tBP/Architecture
2300 Newport Boulevard
Newport Beach, CA 92663

Anne Burger
(714) 673-0300

Design team
Alan E. Smith, AIA
President/Senior Partner

Anthony DePaola
Project Manager

Client
Fontana Unified School District
(909) 357-5000

Grade span
6-8

Current building capacity
1,073

Current building area
83,276 square feet

Total project costs
$12.8 million

Cost per square foot
$154

Space per student
78 square feet

Cost per student
$11,974

Completion date
September 1996

The primary goal of Harry S. Truman Middle School in Fontana, Calif., was to provide an environment that maximizes opportunities for students to achieve. To meet this objective, individual classrooms are located in groupings that allow teachers with common student populations to be in close proximity to each other. These academic "families" for interdisciplinary clusters related to each grade level. When a family for every grade is brought together, they form a "school within a school."

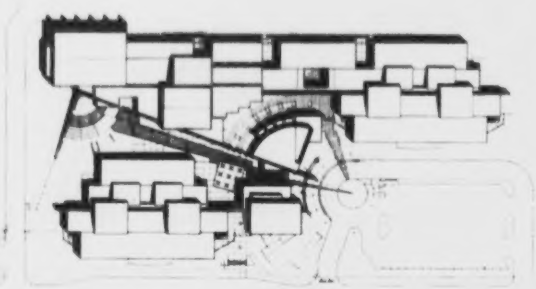
The new middle school contains 83,276 square feet for 1,000 students in two identical 500-student "schools within a school." The facility organizational concept responds to both the program goal and strong northerly Santa Ana winds. Building elements are aligned linearly on the east-west axis to shelter the interior courtyard spaces. Placed at each end of these spines are the academic classroom groupings.

Bisecting the spines at an angle is an architectural accent wall that intersects the main public elements, the library, the multipurpose room, and the gymnasium. This structure forms a public path that is balanced at each end by the library and the amphitheater. The new school was designed to support fiber-optic communications. All classrooms are interconnected, and all instructors have access to the Internet. ■

HARRY S. TRUMAN MIDDLE SCHOOL
ADMINISTRATION

Exterior

Interior



Site plan

BAD AXE HIGH SCHOOL
BAD AXE, MICHIGAN
Wakely Associates Mt. Pleasant, Inc.

Wakely Associates
Mt. Pleasant, Inc.
131 S. Main Street
Mt. Pleasant, MI 48858

John P. Jensen, AIA
(517) 773-9945

Design team
John P. Jensen, AIA
Principal/Designer

Harold M. Boog, AIA
Project Architect

John E. Haas, AIA
Associate Designer

Earl G. Hartman, Jr., PE
Mechanical Engineer

Dion Dixon, PE
Electrical Engineer

MacMillan Associates
Structural Engineers

Client
Bad Axe Public Schools
(517) 269-9938

Grade span
9-12

Current building capacity
600

Current building area
103,500 square feet

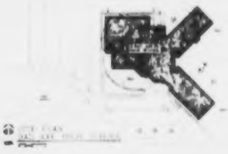
Total project costs
$8.11 million

Cost per square foot
$78

Space per student
172 square feet

Cost per student
$13,522

Completion date
December 1995



Site plan

The new Bad Axe High School is a comprehensive ninth through 12th grade secondary facility designed for easy access to individual student needs including computers, research materials, distance learning, and more. The efficient use of space provides ample areas for independent learning, recreation, fine arts performance, technical education, and administrative and support staff. It is also the community and cultural center for this area.

The educational goal was to provide the community with a current, expandable, and flexible facility to serve existing and future needs. The construction goal was to build prudently with quality masonry and steel sloped roof construction. Finishes were to be first functional, and second, economically justifiable.

A networked system of voice, video, and data communication connect all learning and support space to the building's physical, technological, and symbolic hub: the media center. Future plans include networking to other district buildings.

Aesthetically, a sharp contrasting of color in the brick facade, synthetic stucco, and glazed ceramic tile symbolizes the warm and active learning environment within the complex. The facility includes a large media center, computer labs, a three-court gymnasium with 2,200 seats, four science laboratories with individual project areas, a large student center/cafetorium, and labs for technology and business education. It also includes classrooms for language arts, speech, foreign languages, social studies, math, special education, art, life skills, and music. Separate administrative, guidance, and staff planning areas are provided. Locker rooms for physical education and athletics plus a large weight training room are also included.

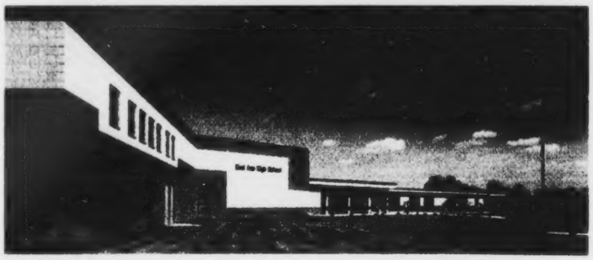
The centrally located media center accommodates the independent student learning inherent in current high school philosophy through free access to various computer areas, project work rooms, and casual reading and work areas. New technologies for distance learning and CD-ROM access are also accommodated. Energy efficient windows transmit natural light to compliment a system of modern indirect lighting. Furnishings, equipment, and colors harmonize to create a warm environment. The media center complex is designed to enhance visual access for staff as well as comfort for the user.

Dual use of the cafetorium for performance seating and cafeteria seating reflects the community's paramount need for group meeting space, presentation space, and fine arts performance space. Located next to the gymnasium center, the cafetorium provides the ancillary space needed for special events. ■

PHOTOS DALE WIECK

Media center

Entry foyer



Exterior

ARLINGTON SENIOR HIGH SCHOOL SAINT PAUL, MINNESOTA

Symmes Maini & McKee/Winsor Faricy in association with Perkins & Will

Symmes Maini & McKee/Winsor Faricy
801 Nicollet Mall, Suite 1600
Minneapolis, MN 55402

Richard T. Faricy, FAIA
(612) 332-3654

Perkins & Will
330 N. Wabash Avenue,
Suite 3600
Chicago, Illinois 60611

August Battaglia, AIA
Project Director
(312) 755-0770

Design team

Symmes Maini &
McKee/Winsor Faricy
Prime Architect

Richard T. Faricy, FAIA
Project Executive

James Cox, AIA
Principal Architect

Mark Beckman, RA
Project Architect

Harry Olsen, AIA
Project Architect

Richard Dufresne
Project Coordinator

Steve Sanneman
Construction Administration

Raed Karasneh
Construction Documents

Perkins & Will
Design Architect

August Battaglia, AIA
Project Director

James Woods, AIA
Programmer/Planner

William Brubaker, FAIA
Planner/Programmer

Ralph Johnson, FAIA
Principal Designer

Tom Mozina, AIA
Jerry Johnson, AIA
Chris Hale, RA
Peggy Hoffman, AIA
Architects

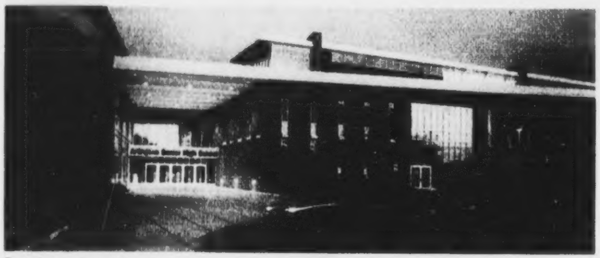
Ericksen Ellison & Associates, Inc.
Mechanical/Electrical Engineer

Meyer, Borgman & Johnson, Inc.
Structural Engineers

The "school within a school" concept fostered the design of the Arlington Senior High School, the second largest urban high school located within the Saint Paul Public School District. The school was designed to facilitate the community's goal of providing its diverse student body with a quality education that has practical applications. The facility was conceived in support of a reinvented curriculum that focuses on lifelong learning to help make students more employable during their school years and after graduation.

The plans for the construction of the new school included a broad-based use of modern technology and the incorporation of a wide range of elective areas. Design provisions were made to accommodate a variety of teaching environments and schedules to allow for instruction that recognizes different learning and teaching styles.

The school is divided into four functionally distinctive zones. Zone One comprises five ninth and 10th grade "houses,," each one serving 200 students with classrooms, laboratories, study space, central gathering space, and faculty office and prep areas. Separate atriums, with student lockers at ground level, orient the interior of the house; teachers' work spaces overlooking the atrium allow for student supervision and security. On the exterior, each house is expressed with its own identity and provides clear circulation in and out of the houses. Zone Two serves


Exterior main entrance

Client
St. Paul Public Schools
(612) 228-3684

Grade span
9-12

Current building capacity
2,000

Current building area
370,000 square feet

Total project costs
$39 million (includes furniture and equipment)

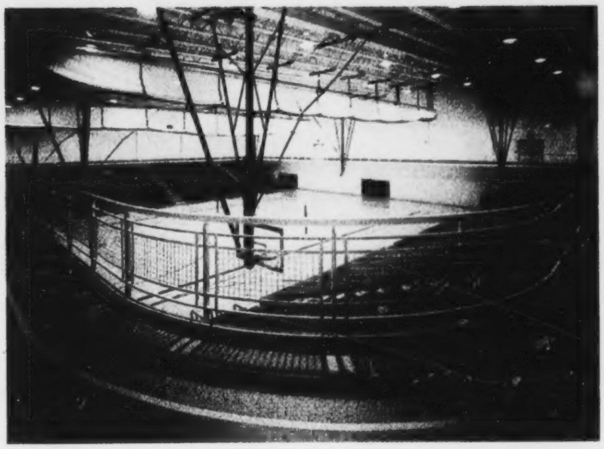
Cost per square foot
$105

Space per student
185 square feet

Cost per student
$19,425

Completion date
September 1996

Independent study area



Gymnasium

House atrium

Library

11th and 12th grade students with a liberal arts house, health science house, government/public policy house, and a communications/technology house. Zone Three is a community core of shared facilities utilized by the entire student body. All grade levels take advantage of business, fine arts, physical education, and technology education spaces. This zone also contains food services, administration, guidance, health services, and a child care center. Zone Four, the information commons, consists of the media center, the study center, and a multicultural resource center. Each zone has a specific occupational and educational emphasis that reinforces the link between education and vocation.

The building's 29-acre site is located in a dense urban area, making it possible for the school to share its programs and facilities with the community at large. Common spaces, such as the cafetorium, the library, the multicultural museum, and physical education facilities, are designed with internal entries for the school's use and external entries for community use after school hours. ■

Exterior student houses

Site plan

BALDWIN HIGH SCHOOL
BALDWIN, NEW YORK

Smith Ottaiano Architects

Smith Ottaiano Architects
119 Fifth Avenue
New York, NY 10003

Design team
Ralph A. Ottaiano
Principal
(212) 353-8910

M. Katheryn Devlin
Project Architect

John Mackovic
Joan Leibman

Client
Baldwin School District
(516) 377-9267

Grade span
9-12

Total project costs
$3.5 million

Completion date
October 1992

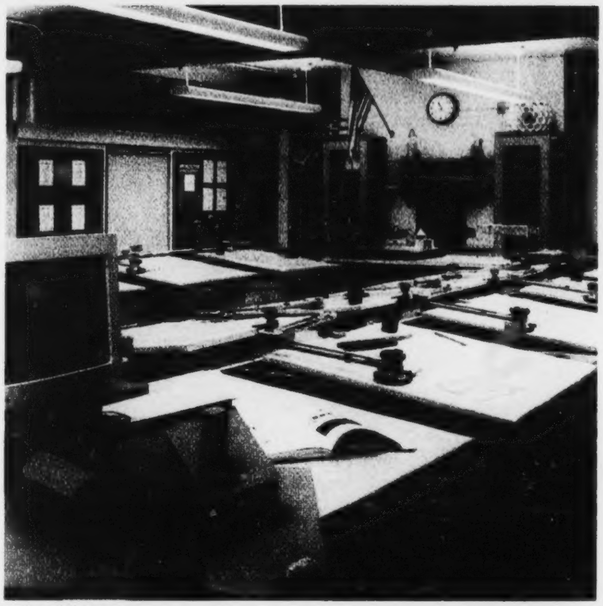
Site plan

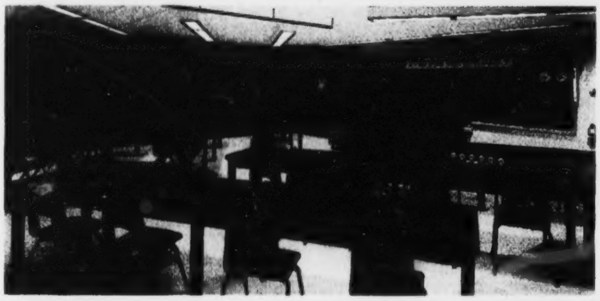
Baldwin High School was constructed in the 1950s. In 1963, a major three-story expansion created additional classroom space. In 1989, the school district approached Smith Ottaiano Architects to help solve the longstanding problem of having their widely recognized high school science curriculum located in two separate and remote areas of the sprawling building.

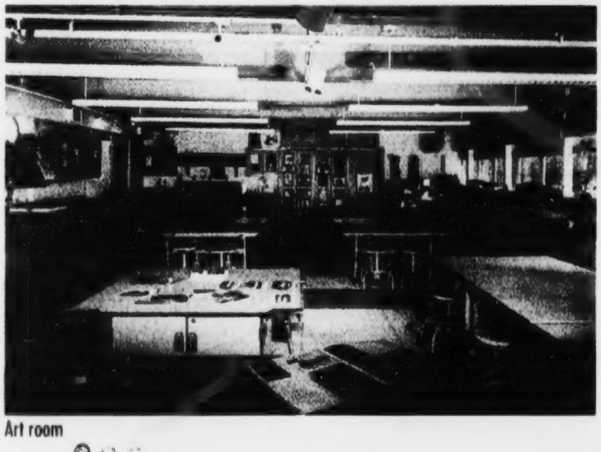
Smith Ottaiano Architects, working closely with the school administrators, department chairs, and faculty, developed a Master Plan for the consolidation and relocation of major curriculum functions. This resulted in the creation of 14 new science laboratories and teaching spaces clustered on two adjoining floors; three new art studios; a photography lab and dark room; new English and math classrooms; and the complete renovation of the home economics wing, including a new food lab and a sewing lab. Also included in the project was the provision for the physically disabled access to the 1963 addition by a new elevator, the enclosing of open breezeways separating building wings, and the inclusion of a video and data distribution system within the renovated areas.

In total, more than 58,000 square feet of educational space was planned and renovated in this project.

Construction was fast-tracked and planned for minimum interruption of school schedules. It began in February 1992, with selected areas, and was completed and fully occupied in October 1992 at a cost of $3.5 million. ■


Technical drawing room


Science room


Art room

BATTLE GROUND ACADEMY FRANKLIN, TENNESSEE

Earl Swensson Associates

Earl Swensson Associates
2100 West End Avenue,
Suite 1200
Nashville, TN 37203

Cathy Rogers
(615) 329-9445

Design team
Earl S. Swensson, FAIA
Principal-in-Charge/Senior Designer

David Huffman, AIA
Project Architect

Chris Ross, AIA
Site Observation

Client
Battle Ground Academy
(615) 794-3501

Grade span
9-12

Current building capacity
380

Current building area
50,000 square feet education buildings
50,000 square feet gymnasium

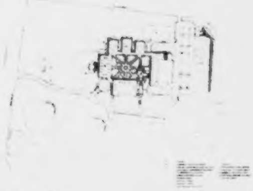
Total project costs
$16.5 million

Cost per square foot
$165

Space per student
263 square feet

Cost per student
$43,421

Completion date
June 1996

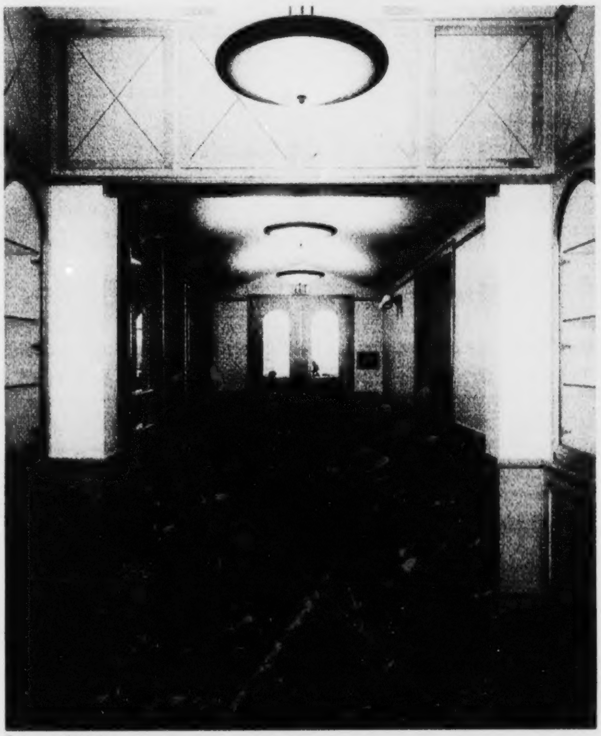

Site plan

Battle Ground Academy (BGA), a private college preparatory school, has been an educational leader for more than 100 years. Space restrictions wouldn't permit growth at the old campus, so grades 9 through 12 were moved to a new location.

The master plan for the 55-acre site called for six buildings arranged around a central quadrangle. Academics are located in three classroom buildings with a total of 50,000 square feet. History and English classrooms, faculty offices, and student restrooms occupy the central building; the math/foreign language building has seven classrooms; and the science building houses physics, biology, and chemistry, each with its own lecture room, lab, office, and storage space.

Library/administration exterior

Central locker area


Entrance interior

On the east side of the quad, the student center contains offices, a cafetorium with dining for 300 and assembly space for 600, and space for music, art, speech, and drama. The 50,000-square-foot sports and fitness center includes a 2,000-seat gymnasium with facilities for basketball, volleyball, wrestling, and fitness training.

Teaching students the skills to excel at BGA and beyond, the library/administration center offers the latest in library technology. A central area for student lockers encourages interaction between upper and lower classmen.

Glen Echo, an 1800s residence on the National Register of Historic Places, is also part of the BGA campus. Funds are being raised for its renovation for administrative use. ■

CAMPBELL COUNTY HIGH SCHOOL ALEXANDRIA, KENTUCKY

Steed Hammond Paul Inc.

Steed Hammond Paul Inc.
1014 Vine Street, Suite 2100
Cincinnati, OH 45202

Kevin Kreuz, AIA
(513) 381-2112

Design team
Kevin Kreuz, AIA
Project Architect

Joe Toman, AIA
Tom Fernandez, AIA
Mark Costello
Lisa Inglert

Patti Sumner
Interior Designer

Client
Campbell County School District
(606) 635-2173

Grade span
9-12

Current building capacity
1,450

Current building area
209,000 square feet

Total project costs
$18.7 million

Cost per square foot
$89

Space per student
144 square feet

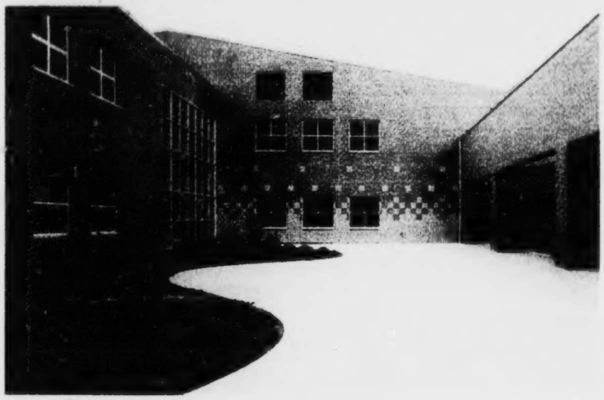
Cost per student
$12,900

Completion date
August 1995 and April 1996

Campbell County High School delivers on the directive to provide a cost-effective building design for the district and an advanced learning environment for the students. Throughout the school there is a heavy emphasis on computer technology. The school has 10 science labs with separate lecture/lab areas for chemistry, physics, and biology. Every classroom is equipped with a telephone, a video monitor, and an infrared remote-control device to operate the school's state-of-the-art, baseband media-retrieval system.

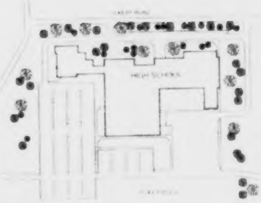
The school's interior is enhanced by bright colors and natural light. Glass block opens up the main entrance, providing an inviting public space and highlighting the two-story media center. An open courtyard, visible from the school's major entrances, is a focal point of the building. Located in the center of the school, off the cafeteria, the courtyard brings natural light into the school's interior. It can be used as an outdoor learning environment and offers students the opportunity to enjoy lunch outdoors.

Two-story media center



Courtyard

In addition to the above features, the high school also delivered an attractive bottom line to the district. The building's efficient design enabled the district to budget a large amount for technology and proceed with a 750-seat auditorium addition several years ahead of schedule. The addition, which includes a full-height stage suitable for community productions, was completed in the spring of 1996. ■



Site plan

Chemistry lab

CHENEY HIGH SCHOOL CHENEY, WASHINGTON

ALSC Architects, PS

ALSC Architects, PS
203 N. Washington, #400
Spokane, WA 99201

Craig C. Conrad
(509) 838-8568

Design team
Gary Dinwoodie
Principal-in-Charge

Craig Conrad
Project Designer

David Shockley
Project Architect

Marian Evenson
Interior Designer

Structural Design NW
Structural Engineers

Thomas Gerard & Associates
Mechanical Engineers

DEI Electrical Consultants
Electrical Engineers

Client
Cheney School District #360
(509) 235-6205

Grade span
9-12

Current building capacity
1,050

Current building area
176,570 square feet

Building area before addition/renovation
89,000 square feet

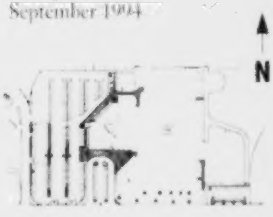
Total project costs
$12.35 million

Cost per square foot
$70

Space per student
168 square feet

Cost per student
$11,761

Completion date
September 1994

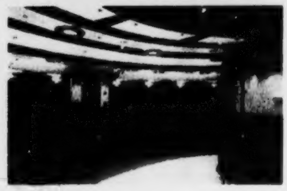


Site plan

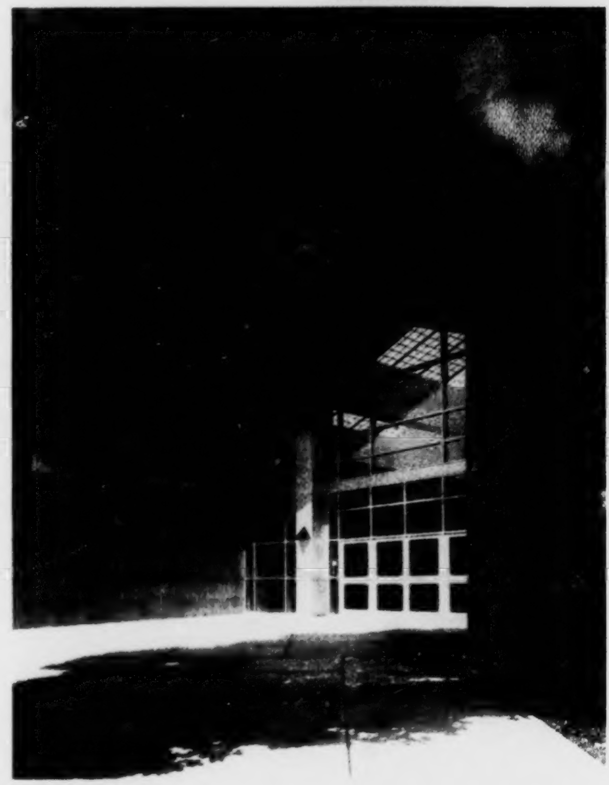
For 67 years, families in Cheney, Wash., have been served by a school system that provides an educational experience which culminates in a single community high school. The original building was replaced in 1962 with the building that was the subject of this modernization.

The 1962 facility, which was expanded in 1978, served as a three-year high school. This project's primary objective was to accommodate grades 9-12 as part of a district-wide reconfiguration. Other important goals included the accommodation of current and future technology, and the enclosure of space between five buildings in a way that was easily understood and supervised.

Student commons



Auditorium



Front entry

The design team sought ways to take advantage of existing characteristics. The loop corridor system in the original main building suggested that a larger loop could be used as a device to reorganize spaces. By moving the entrance to the south, a student commons was developed that crossed the circulation loop in two places and connected the entrance with major activity areas.

One of the most important issues addressed was the continuation of a high quality curriculum during construction. Construction documents clearly defined phasing requirements to avoid conflict between academic and construction activity. ■

JOHN B. CONNALLY HIGH SCHOOL PFLUGERVILLE, TEXAS

SHW Group, Inc.

SHW Group, Inc.
4101 McEwen, Suite 300
Dallas, TX 75244
William T. Downs
(214) 701-0700

Design team
Gary Keep
Principal-in-Charge
Tom Oehler
Project Manager
Andy Tunnell
Project Architect
Gary Lamb
Project Designer
Joe Craddock
Structural Engineer
Buck Hendrix
Mechanical & Plumbing
Jon Ratliff, Myers & Associates
Electrical
Randy Rose
Pflugerville ISD Building Director

Client
Pflugerville Independent School District
(512) 251-4159

Grade span
9-12

Current building capacity
1,400 core; facilities for 2,200

Current building area
186,445 square feet each

Total project costs
$16.24 million

Cost per square foot
$87

Space per student
133 square feet

Cost per student
$11,603

Completion date
March 1996

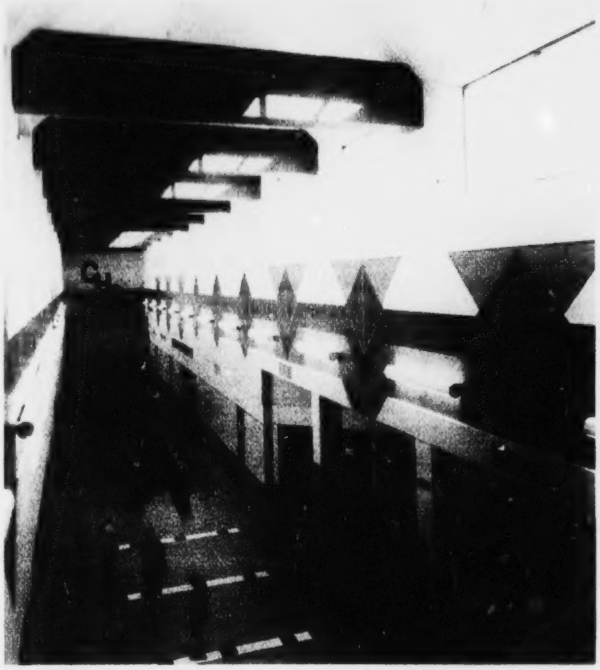
Pflugerville Independent School District is a rapidly growing school district. The architect's assignment was to design a second high school that would initially accommodate ninth grade only, but would accommodate all four grades within four years. The building's initial design was to be for a capacity of 1,000 students with ultimate enrollment of 2,200 students. Core facilities were to be designed for expansion, and therefore, the library, dining area, and gymnasium had to be designed as such.

Although a beautiful site, it sloped approximately 60 feet from the street to a waterway at the rear. The district's program required that many existing oak trees on the site be saved even though football and softball fields were also required. The slope of the site was accommodated by designing current and future classrooms into wings that could be ramped to provide a floor consistent with the site slope. The oak trees along the rear of the site were saved, making a beautiful backdrop to the main building.

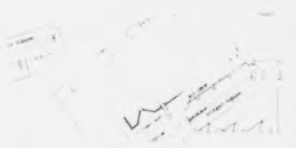
As the decision was made early in the design process to design the high school for the 2,200-student capacity, the architects deleted the portion of the building that was not needed to provide a school designed for 1,000 students. ■

Front entry

Cafeteria



Corridor



Site plan

DESOTO HIGH SCHOOL
DESOTO, KANSAS

The Hollis & Miller Group, Inc.

The Hollis & Miller Group, Inc.
5000 W. 95th Street, Suite 100
Prairie Village, KS 66207

Gail Ensz
(913) 642-6111

Design team
Kirk C. Horner, AIA
Principal-in-Charge

Ken Graham, AIA
Project Designer

Greg Schiller, RA
Project Architect

Client
DeSoto Unified School District
No. 232
(913) 583-8300

Grade span
9-12

Current building capacity
750, expandable to 1,000

Current building area
108,800 square feet

Total project costs
$7.41 million

Cost per square foot
$68

Space per student
145 square feet

Cost per student
$9,889

Completion date
August 1995

One of several projects in a $15 million bond referendum, the new high school for this rapidly growing district was designed to serve grades 9-12 with a capacity of 750 students, capable of being expanded to 1,000. The new two-story building was constructed adjacent to the existing high school, which will become a middle school. The master plan of the site ultimately includes a new elementary school and features a 10-acre outdoor nature area.

The new high school is defined by two intersecting circulation "spines," bright and airy with natural light, which divide the school into four quadrants, with distinct identities characterized by the nature of their use and provide excellent expandability and supervision.

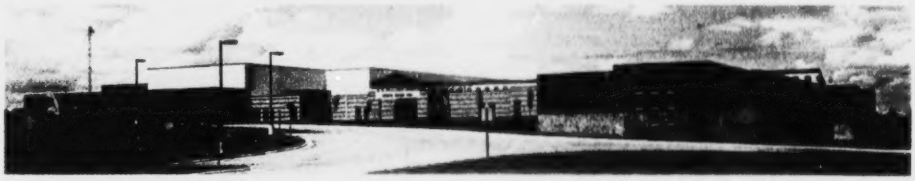
Quadrant One, the student activities area houses the noisy, bustling areas such as the commons, the gymnasium, and the cafeteria. In contrast, the Academic Quadrant has a quiet atmosphere for studies in classrooms and the media center. Computers and technology are the themes of the third quadrant where science, mathematics, art, and technology labs are found. Finally, the Fine Arts area emphasizes performance where a 350-seat theater, instrumental and vocal music rooms and drama rooms are located.

The master plan of the school eventually calls for a 750-seat auditorium and either a second gymnasium or a natatorium. The two circulation "spines" allow for easy future expansion and maintain a simple circulation pattern throughout the school. ■

Corridor

Life skills classroom

Site perspective


Exterior

WILLIAM HENRY HARRISON HIGH SCHOOL LAFAYETTE, INDIANA

Schmidt Associates, Inc.

Schmidt Associates, Inc.
320 E. Vermont Street
Indianapolis, IN 46204

Steven K. Alspaugh, AIA
(317) 263-6226

Design team
Ronald W. Fisher, AIA
Partner-in-Charge

Steven K. Alspaugh, AIA
Project Manager

Mary Ellen Wolf, AIA
Project Architect

Wesley B. Harrison, PE
Structural Engineer

Circle Design Group
MEP Engineers

Vorndran and Associates
Food Facilities

Client
Tippecanoe School Corporation
(317) 474-2481

Grade span
9-12

Current building capacity
1,600

Current building area
319,796 square feet

Building area before addition/renovation
206,340 square feet

Total project costs
$17.8 million

Cost per square foot
$71

Space per student
200 square feet

Cost per student
$11,156

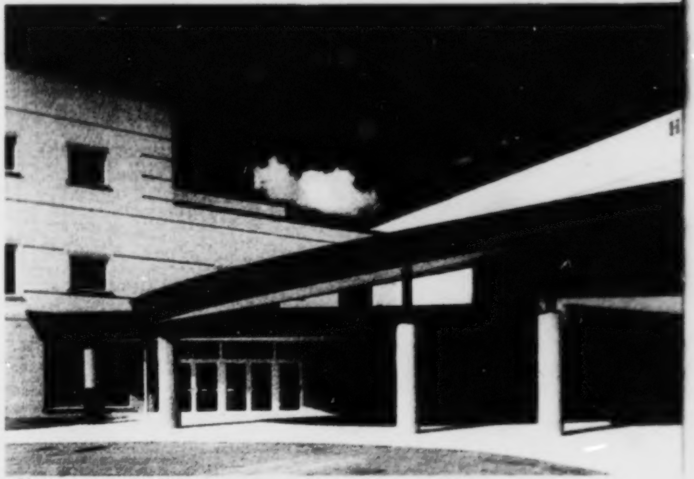
Completion date
July 1996

The need to expand and renovate both high schools in the Tippecanoe School Corporation's district in Lafayette, Ind., was a result of a rapidly growing community and expanding educational and technological needs. William Henry Harrison High School, in particular, was expanded to accommodate a future enrollment of 1,600 students.

In the fall of 1996, the students and faculty returned to a quite different school, with almost 96,000 square feet of expansion. For starters, blue canopies patterned along the facade were created to enhance the "identity" of the building and to give focus to what are now new student, visitor, and event entrances. The curved wall on the north facade identifies the expanded cafeteria. And the south facade—approximately half of which was newly constructed—holds the new public event entry and renovated gymnasium facility.

Once inside, the most significant educational changes include expanded laboratories for art and science; additional classrooms for such areas as English, Math, and Special Services; redesigned and expanded facilities for a new state-mandated curriculum for Industrial Technology, and bigger and better rehearsal, instructional, and practice areas for music. Colorful new murals identify and organize the building visually and departmentally.

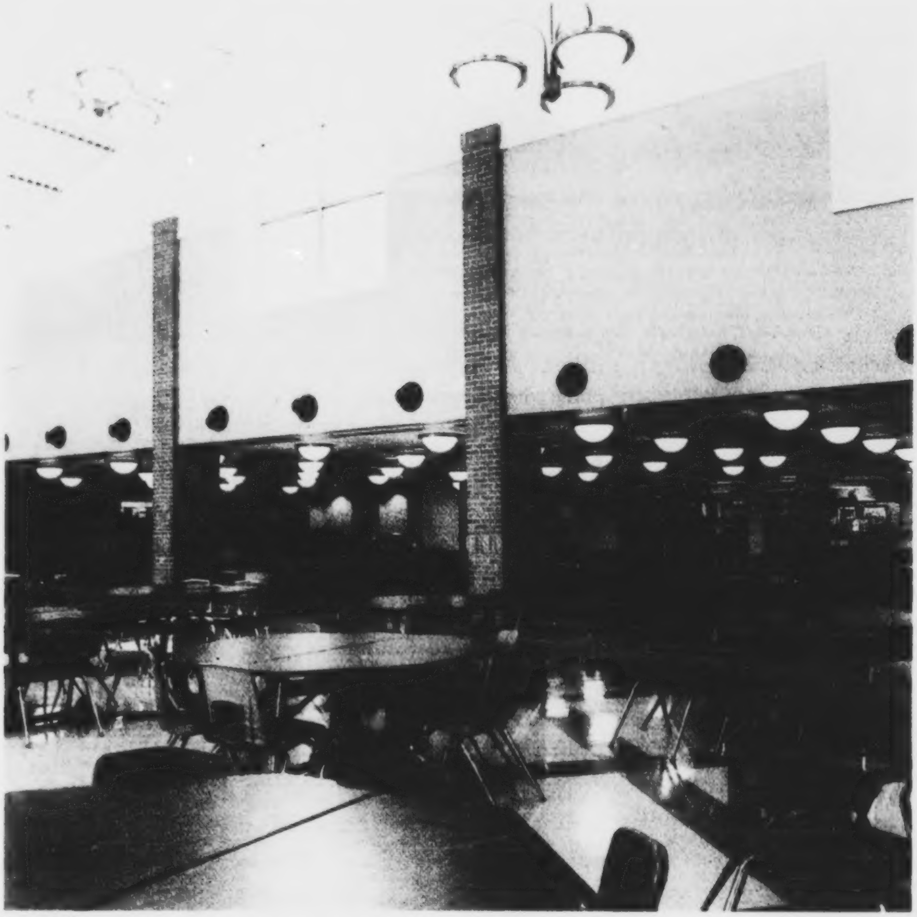
Expanded and reorganized, the media center now can handle the expanding student enrollment, increasing volumes of material, and techno-


Athletic event entry

Corridor with mural

Courtyard

RRISON
RAIDERS



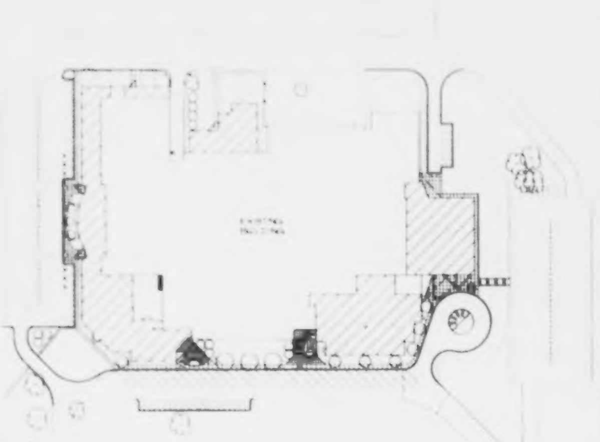
Dining hall

logical advances. Networked to the media center, computer rooms were also added throughout the facility.

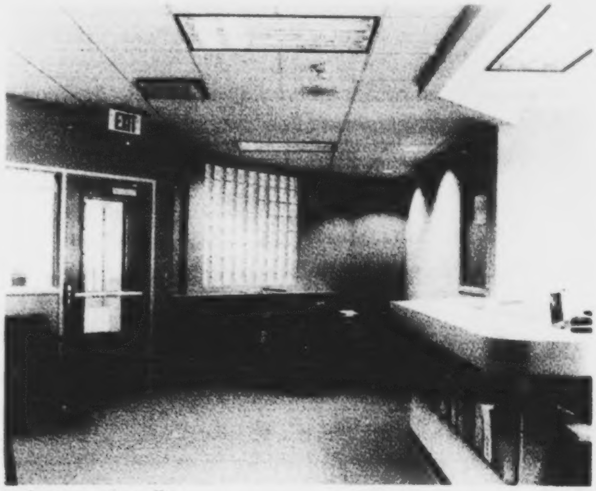
A major component of the reorganization and remodeling consisted of the relocation of the student dining area to an area north of the kitchen. The previous dining room was converted into a study hall and a student commons.

The courtyard, formed by the addition of the northwest area of the building, was designed for minimal maintenance requirements. Utilized for supervised instructional activities by the Art, English, and Science departments, this new area also allows more natural light to filter into the building.

William Henry Harrison High School was reorganized with consideration to three primary factors: centralizing rooms/spaces around each department, maintaining the location of departments where economically feasible, and placing departments according to their relationship with each other. ■



Site plan



Academic counselor's office

HERSHEY HIGH SCHOOL
HERSHEY, PENNSYLVANIA

Foreman Architects Engineers, Inc.

Foreman Architects Engineers, Inc.
525 W. New Castle Street
P.O. Box 189
Zelienople, PA 16063

Clifford G. Foreman
(412) 452-9690

Design team
C. Roger McIntyre
Project Architect

Robert Dorsch
Mechanical Engineer

Steve Cotherman
Electrical/Technical Engineer

Gary Giles
Structural Engineer

Julie Rogozewicz
Interior Designer

Chambers Vukich Associates
Landscape Architects

James McFarland Associates
Food Court

Client
Derry Township School District
(717) 534-2501

Grade span
9-12

Current building capacity
1,164

Current building area
204,722 square feet

Total project costs
$19.4 million (plus site, fixed and moveable equipment)

Cost per square foot
$95

Space per student
176 square feet

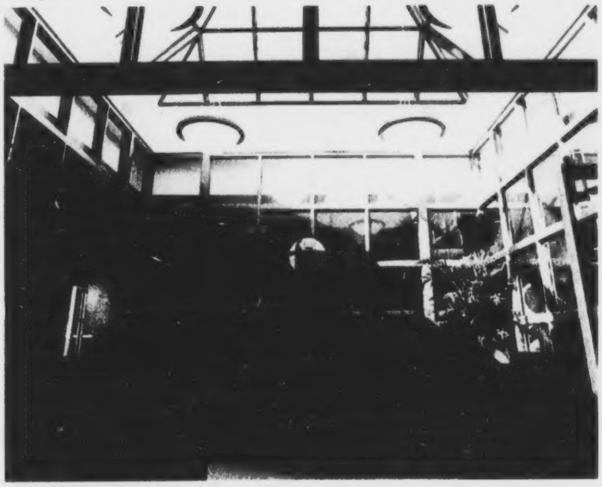
Cost per student
$16,650

Completion date
March 1996

All areas of the new Hershey High School have access to voice, data, and video cabling. The fiber optics respond to the district's current and future applications. Each room is configured for a 28-student computer network with a minimum of 49 data outlets. Cabling mounting brackets and outlets to support a television monitor, laser disk, VCR, and other multimedia equipment are provided in each room along with a satellite antenna system. The fiber-optic cabling extends to the middle school to collect the voice, video, and computer networks. Providing computer networking throughout the buildings allows students and teachers access to computer stations in all classrooms. The stations can be used for multimedia teaching and administrative functions.

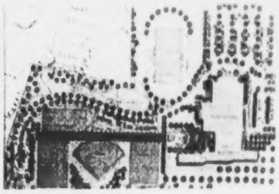
The ultimate goal for the facility is to provide each student with a portable laptop computer. The facility is equipped so that the laptops can connect into the computer network anywhere in the facility or via modem from home.

Courtyard


Library reading area

Within the 104-acre campus, parking can accommodate 600 visitors, faculty, administrators, support staff, and students. Also included is bus, automobile and service vehicle access to various portions of the site. Included on the site is an entrance court, dining court, sculpture and art courtyard, outdoor library and reading area, an information amphitheater suitable for performance and dances, and a tree-lined lane leading to the school's playing fields. The entire site is landscaped to maintain the character of the surrounding area. ■

Food court


Site plan

HILLSIDE SENIOR HIGH SCHOOL
DURHAM, NORTH CAROLINA

The Freelon Group • Hayes Large Architects

The Freelon Group • Hayes Large Architects
Logan Boulevard and 5th Avenue, P.O. Box 1784
Altoona, PA 16603

H. Diane Marlett
(814) 946-0451

Design team
Philip G. Freelon, AIA
Richard L. Karcher, AIA, REFP
Co-Principals-in-Charge

Client
Durham Public Schools
(919) 560-3831

Grade span
9-12

Current building capacity
1,600

Current building area
292,000 square feet

Total project costs
$20.5 million

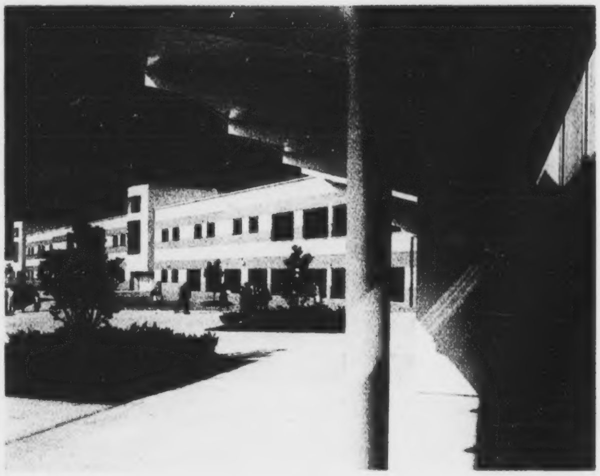
Cost per square foot
$70

Space per student
183 square feet

Cost per student
$12,826

Completion date
September 1995

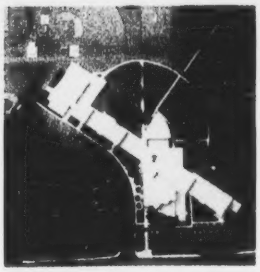
Hillside High School was designed as a regional model high school. The model is utilized as a test site for new technology and instructional methods including widely varied class sizes and interdisciplinary studies. Space was designed to accommodate various configurations including four independent classrooms, two double classrooms, or one four-classroom area. Teacher and administrative offices were decentralized to encourage interdisciplinary use. Day care and student wellness centers enrich the model curriculum. Every classroom has at least five computer terminals wired for access to the district network.


Exterior

Performing arts theater

The school occupies an important place in the community due to the strong alumni contingent in the area. Accordingly, the main entrance is also the entrance to the 1,300-seat theater. There are also areas for volunteer work and archival storage.

The school was configured to fit an unusual C-shaped site, placing the shared large group spaces in the center of the building toward the main access road. Colored split face block is used as an economical exterior skin with visual interest. The long mass of the building is punctuated by stair towers which also house mechanical services. ■


Site plan

Media center

HORIZONTE INSTRUCTION & TRAINING CENTER SALT LAKE CITY, UTAH

Valentiner Crane Brunjes Onyon Architects

Valentiner Crane Brunjes Onyon Architects
524 South 600 East
Salt Lake City, UT 84102

Design team
Steve Crane, AIA
Principal-in-Charge
Boyd McAllister, AIA
Project Architect

Client
Salt Lake City School District
(801) 578-8574

Grade Span
High School, Adult Ed., ESL,
Alternative H.S.,
Young Parents

Current building capacity
1,200 daily; serves 10,000

Current building area
120,000 square feet

Total project costs
$8.77 million

Cost per square foot
$73

Space per student
100 square feet

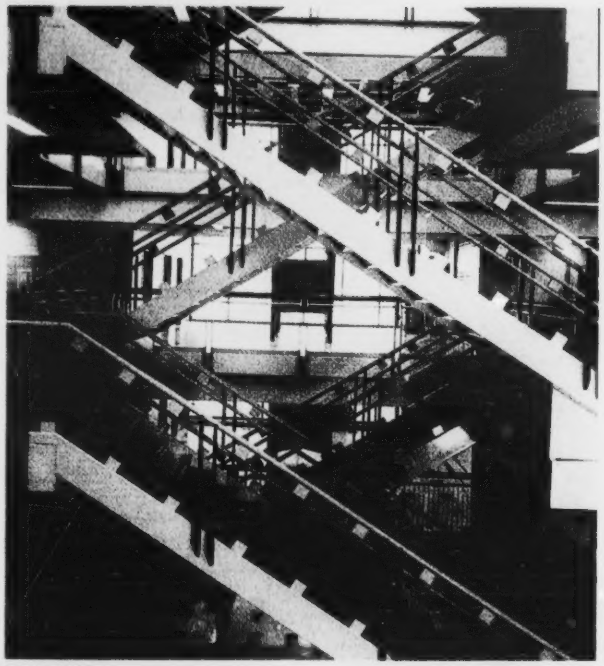
Cost per student
$7,300

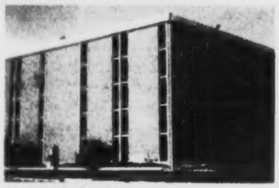
Completion date
August 1995

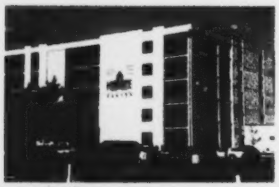
Horizonte Instruction and Training Center is a novelty in predominately Caucasian Utah. Students come from 62 nations and range in age from 14 to 82. The school's design is a magnet that draws these unique students and teachers together while providing a sense of security and confidence.

The building was a 25-year-old, abandoned, state office building left vacant due to its enormous size, unworkable floor plate, minimal windows, and unsafe atmosphere. The architect met the challenge and even expanded the school district's options through a unique design that opened up the middle of the building with a central atrium and stairway. All class changes, departmental interaction, and circulation take place within the central stairway. The central atrium also allows natural lighting through all five floors and to interiors.

Classrooms are placed around the perimeter. Interior rooms benefit from the central atrium and windows. Classrooms are flexible and can be adjusted to become two or three spaces. Every classroom is equipped with computers and telephone, and wired for interactive cable. Each teacher and student has her or his own e-mail address. Students obtain all homework and school information from a computer and turn in homework via computer. The Horizonte Center also includes 20,000 square feet of child-care space to serve the children and infants of students and staff. ■


Interior stairs


Exterior (before)


Exterior (after)

Media center

Fourth floor plan

BOB JONES HIGH SCHOOL MADISON, ALABAMA

Fuqua, Osborn & Associates, PC

L. Hughes Associates, Architects

Fuqua, Osborn & Associates, PC
112 Washington Street
Huntsville, AL 35801

Daniel C. Osborn
(205) 534-3516

L. Hughes Associates, Architects
400 Meridian Street
Huntsville, AL 35801

Larrell D. Hughes
(205) 534-4220

Design team
Tim Packard
Project Architect

Steve Wilt
Project Architect

O & S Enterprises, Inc.
Electrical Engineers

Keith Allen & Associates
Mechanical Engineers

Hodnett/Hurst Engineers, Inc.
Structural Engineers

Client
Madison County Board of Education
(205) 532-3522

Grade span
9-12

Current building capacity
1,400 expandable to 2,000

Current building area
222,000 square feet

Total project costs
$15.5 million

Cost per square foot
$70

Space per student
159 square feet

Cost per student
$11,071

Completion date
August 1996

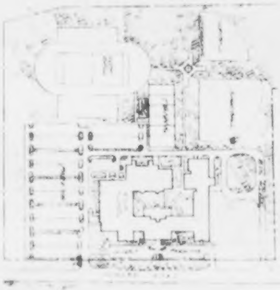
Faced with a population explosion in the town of Madison, Ala., the Madison County board of education developed a long-range plan to help solve the issue of overcrowding in its school system. The plan called for a 1,400-student school which could be expanded to 2,000 students.

Recently completed, Bob Jones High School is the culmination of this plan. The school contains general-purpose classrooms; special-education classrooms; computer, physics, and chemistry labs; administrative areas; and athletic facilities.

Working with the City of Madison, a 1,400-seat auditorium was also constructed as a part of this facility. The auditorium will not only be used for school functions, but will also serve the city for civic activities. A 2,400-seat competition gymnasium and a 300-seat auxiliary gymnasium that will be accessible after hours is also a part of the new school. In addition, the 41-acre site provides baseball and softball fields, tennis courts, concession stands, and a football practice field with field house. ■

BOB JONES HIGH SCHOOL

Main lobby



Site plan

Gymnasium

LAFAYETTE HIGH SCHOOL WILLIAMSBURG, VIRGINIA

Bond Comet Westmoreland + Hiner Architects

Bond Comet Westmoreland + Hiner Architects
207 W. Broad Street
Richmond, VA 23220
Joanne Huebner
(804) 788-4774

Design team
Douglas D. Westmoreland, AIA
Principal-in-Charge
Derek N. Jeffrey, AIA
Project Manager
Eric Keplinger
Project Architect
Jennifer Needham
Interior Design

Client
Williamsburg-James City
County Public Schools
(804) 253-6777

Grade span
9-12

Current building capacity
1,250

Current building area
205,000 total
185,000 renovated

Total project costs
$10.97 million

Cost per square foot
$65

Space per student
164 square feet

Cost per student
$8,780

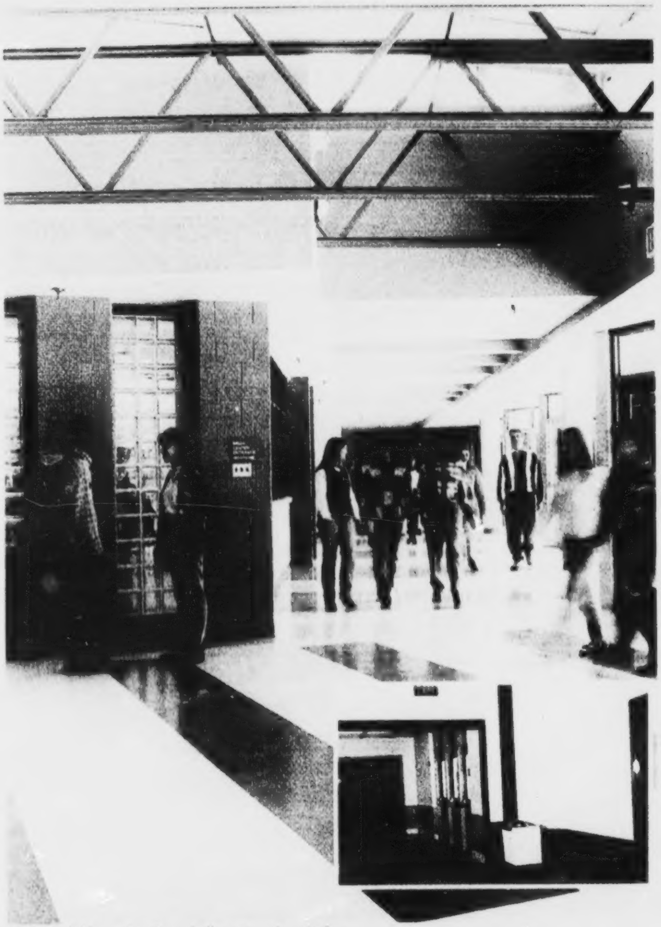
Completion date
August 1996

Lafayette High School in Williamsburg, Va., was originally constructed in 1974 to accommodate 1,250 pupils. In the 20-plus years since, enrollment ballooned to more than 1,800 students.

Two years ago, when the reconstruction of Lafayette High School began, conditions at the school were unbearable. Site circulation was confusing and congested; bus, car, and pedestrian traffic battled daily. Inside, things were no better. Corridors were narrow, inefficient, disorienting, and difficult to supervise. The learning environment was drab and uninspiring. The facility did nothing to support the school's mission of academic excellence.

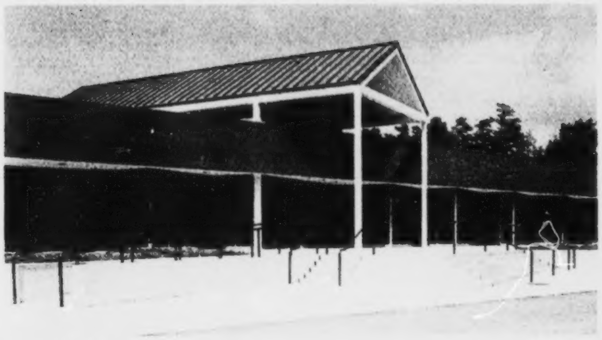
The vision of a renovated Lafayette emerged from a strong planning process that involved teachers, students, and members of the community. Lafayette High School was programmed simultaneously with Williamsburg-James City County's new high school. The challenge at Lafayette then became how to meet the school division's educational program for a new "High School of the 21st Century" while overcoming the myriad problems inherent with the existing facility. This challenge seemed particularly daunting given the widespread pessimism among the educational community that a renovated Lafayette High School could ever rival a new facility. These same skeptics, though, are now believers. The renovated Lafayette High School is indeed a new, 21st century high school.

The most dramatic transformation at Lafayette High School is evident in the clarity



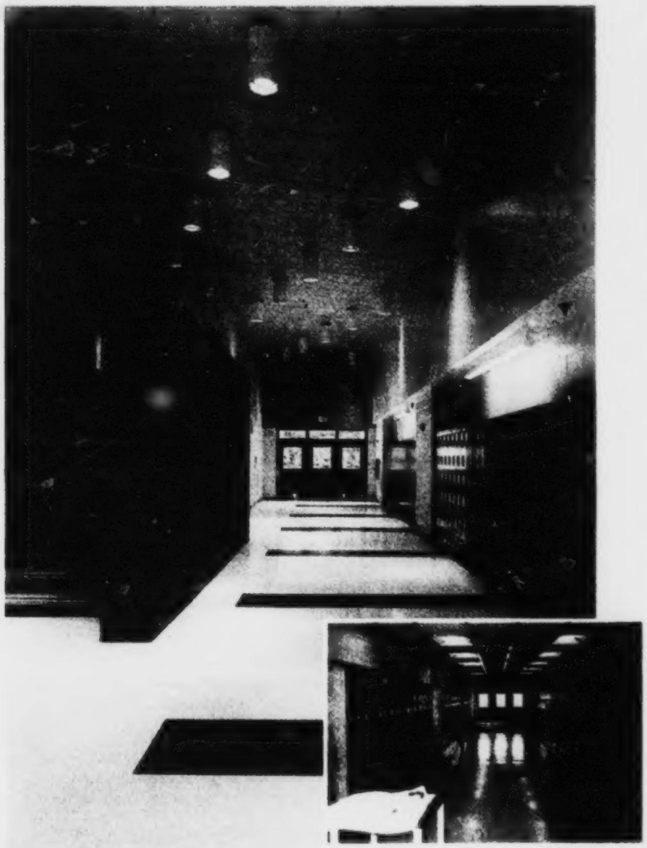
Entrance lobby at bus loop, before (inset) and after

Interior of media center



Exterior bus loop

Exterior plaza



Interior hallway before (inset) and after

of the new circulation system and the overall quality of the learning environment. Where once obscure, building entrances have been relocated and redesigned to welcome public visitors, bus riders, and teacher/student drivers. From each entrance and throughout the school, interior corridors are direct, ample, and crisply detailed. Color, pattern, material, natural light, and built-in display equipment enrich the educational experience. The new environment reflects a sense of purpose and professionalism unimaginable in this school a few years ago.

Organizationally, the school incorporates four academic houses and a centralized science core. Each house includes a faculty office suite and a computer resource lab. This concept affords the opportunity for a traditional, departmentalized approach to education delivery, as well as contemporary ideas about interdisciplinary and "school-within-a-school" models. Administration is decentralized to strengthen its functional relationship with teachers and students.

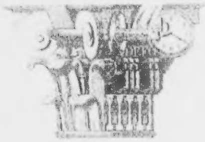
Lafayette High School also incorporates a robust educational technology package. Each classroom has been redesigned and wired with data capability for 6-8 student computers, an instructor workstation, and a video monitor. All classrooms and computer labs are networked to one another as well as to the media center. Distance learning is possible from any instructional space in the school.

Lafayette High School exemplifies the fact that the majority of 21st century high schools already exist. ■

Site plan

Technical education classroom

HIGH SCHOOLS
New Construction



MASSILLON WASHINGTON HIGH SCHOOL MASSILLON, OHIO

Lesko Associates, Inc.

Lesko Associates, Inc.
Gemini Tower II, Suite 200
2001 Crocker Road
Cleveland, OH 44145

Nicholas Lesko, FAIA
(216) 835-0850

Design team
Nicholas Lesko, FAIA
Administrator

Edward G. Lesko, AIA
Partner-in-Charge of Design

Harold R. Armstrong
Educational Planner

Richard E. Deming, AIA
Project Architect

Alan J. Duber, AIA
Production Manager

Client
Massillon City School District
(330) 830-1810

Grade span
9-12

Current building capacity
1,600

Current building area
291,777 square feet

Total project costs
$22.1 million

Cost per square foot
$76

Space per student
182 square feet

Cost per student
$13,812

Completion date
1992

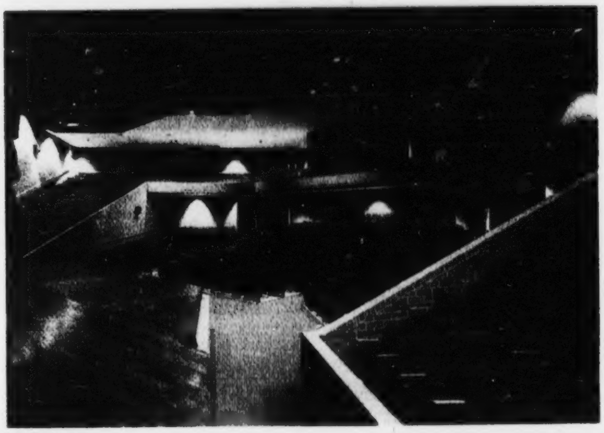
To replace an aged high school that had no outdoor physical education areas, a site was selected adjoining an important state and community landmark—Paul Brown Stadium—and a city park. The design challenge was to create a contemporary structure with a bold demeanor reflecting the energy of this industrial city.

Orienting the school to face the stadium and the beautiful wooded park to the north creates a buffer to the industrial park on the south. The school literally turns inward on itself with its back to the industrial area.

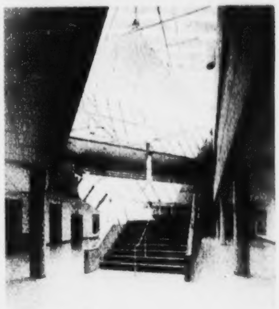
The dynamic main entry with a large paved and landscaped plaza is a hub leading to various elements of the school and offers a panoramic view of the park and stadium. The physically prominent media center/library is on the axis with the plaza, reaffirming its importance to the educational program.

To maximize the community-friendliness of the school, the auditorium, cafeteria-commons and gymnasiums are easily accessible from the plaza. To meet the design challenge, the exterior incorporates large expanses of glass with horizontal bands of aluminum accented by solid masonry walls.

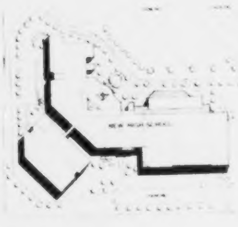
An industrial technology building, located behind the main building and connected by a corridor at the second floor level, serves an important part of the Massillon program. Separate parking and pedestrian areas provide independent access to this building. The building includes auto, machine and electronic shops, drafting, telecommunications center, and cosmetology lab. ■



Auditorium



Interior skylight



Site plan

Front entrance exterior

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McCASKEY EAST HIGH SCHOOL LANCASTER, PENNSYLVANIA

Gilbert Architects

Gilbert Architects
626 N. Charlotte Street
Lancaster, PA 17603

Paul Steffy
(717) 291-1077

Design team
Thomas W. Gilbert, RA
Principal

Pierre deVitry, RA
Senior Project Manager

Client
School District of Lancaster
(717) 291-6135

Grade span
9-10

Current building capacity
1,720

Current building area
290,000 square feet

Total project costs
$27.7 million

Cost per square foot
$90

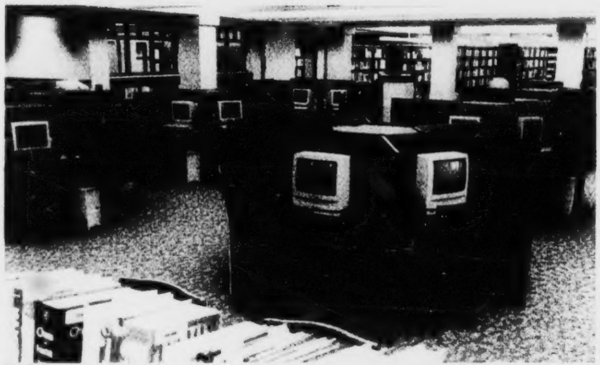
Space per student
169 square feet

Cost per student
$15,104

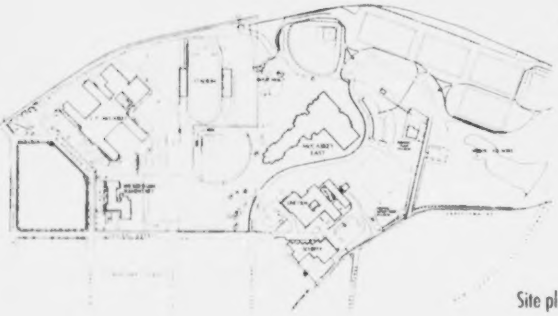
Completion date
August 1996

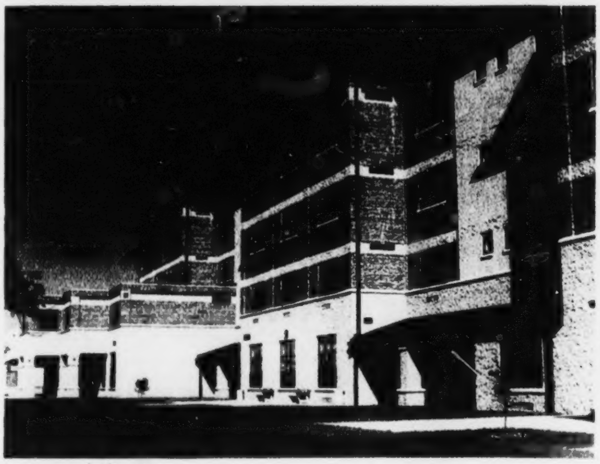
McCaskey East High School was designed to accommodate 1,720 ninth and tenth grade students. The high school sits on a campus of 120+ acres, along with an Elementary School, Junior and Senior High School, and Administrative Office Center. McCaskey East consists of eight separate "houses" each with a Science Lab, five classrooms with moveable partitions, a communications and technology room with audiovisual editing room, a staff planning space, and four locker bays. Special features of the four-story, L-shaped building include a semi-circular Large-Group Instruction Room seating 75 students, greenhouses in each of the Science Labs, and patios off the Cafetorium and Art Departments. There is an 8,000-square-foot Media Center and special areas for each of the performing arts; band, orchestra and chorus, drama, and dance. Technology includes an internal voice, video, and data communication system with closed circuit TV and two satellite dishes.

The building is fire resistive masonry cavity wall construction, and the roof is a two-and one-half-inch standing seam metal. ■


Media center

Main lobby


Site plan


Exterior north elevation

HIGH SCHOOLS
Significant Project in Progress

MOUNT VERNON HIGH SCHOOL ALEXANDRIA, VIRGINIA

Beery, Rio and Associates

Beery, Rio and Associates
4215 Evergreen Lane
Annandale, VA 22003

William T. Brown II, AIA
(703) 256-9700

Design team
William T. Brown, II, AIA
Partner-in-Charge

Rick Rutledge, AIA
Project Architect

Anne Richards, IIDA
Interior Designer

Leslie Sluger, Associate AIA
Job Captain

Molly Merlo, Associate AIA
Intern Architect

Nick Gripp, Associate AIA
Intern Architect

Client
Fairfax County Public Schools
(703) 246-3633

Grade span
9-12

Current building capacity
2,400

Current building area
458,181 square feet

Building area before addition/renovation
443,609

Total project costs
$25.33 million

Cost per square foot
$55

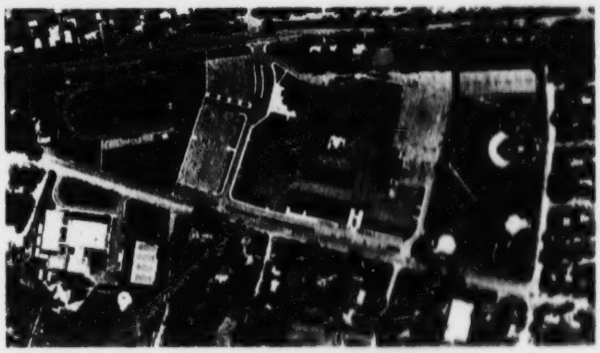
Space per student
191 square feet

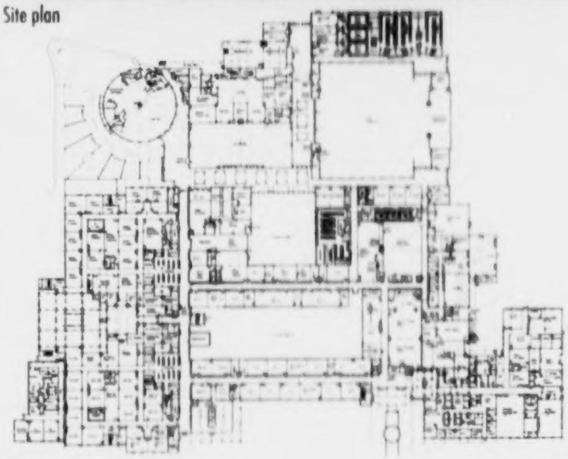
Cost per student
$10,555

Completion date
September 1999

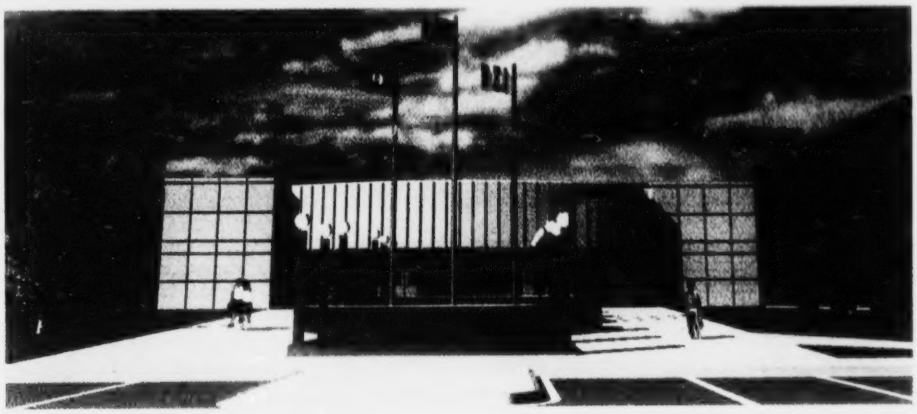
The Mount Vernon High School consists of the original Walt Whitman Intermediate School built in 1960 with an addition built in 1970 to create a high school. The new design accommodates a future student population of 2,400 and incorporates a new 15,000-square-foot addition for a Center for the Emotionally Disturbed. Academic departments will be centralized with teacher planning, support work spaces, and toilet facilities.

The Media Center is now secured by enclosing walls and is on the central axis of the two-story wing, accessible to the English and Social Studies departments and open to observation from the second-story Science area through a glass corridor. English and Social Studies share the first floor around the Media Center. The administrative suite has been relocated for better visual control of the public entrance and better access for visitors.


Site plan


Floor plan

The renovation will extend the life cycle of the building for 20 or more years. Upgrading basic systems such as heating and air conditioning; updating vocational facilities; refurbishing classrooms; installing wiring for cable television and computers; and providing upgraded finishes will accomplish this goal. The renewal will proceed while the building is occupied, and the project is to be completed in the fall of 1999. ■


Exterior

NORTH RIDGEVILLE HIGH SCHOOL ADDITION NORTH RIDGEVILLE, OHIO

Lesko Associates, Inc.

Lesko Associates, Inc.
Gemini Tower II, Suite 200
2001 Crocker Road
Cleveland, OH 44145

Nicholas Lesko, FAIA
(216) 835-0850

Design team
Nicholas Lesko, FAIA
Administrator

Edward G. Lesko, AIA
Designer

Harold R. Armstrong
Educational Planner

Alan J. Duber, AIA
Production Manager

Client
North Ridgeville City School District
(216) 327-4444

Grade span
9-12

Current building capacity
1,200

Current building area
139,088 square feet

Addition and renovation
58,141 square feet

Building area before addition/renovation
101,000

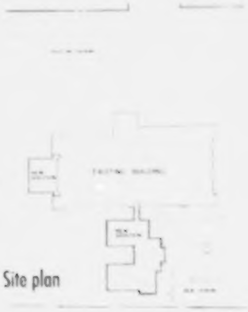
Total project costs
$3 million

Cost per square foot
$52

Space per student
116 square feet

Cost per student
$13,356

Completion date
June 1994



Site plan

The program called for an addition to a large high school consisting of classrooms, a learning center, and an auxiliary gymnasium.

The existing building had a low silhouette, an undistinguished facade and lacked a clearly defined main entry.

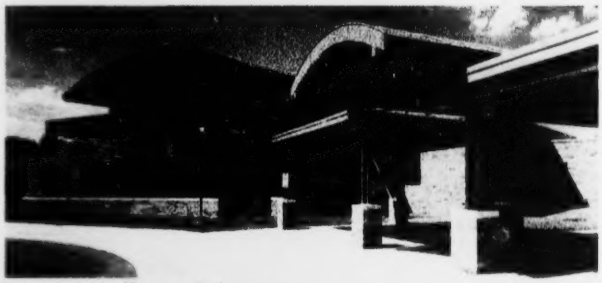
Architecturally, the challenge was to design an addition that identifies the main entrance to the complex; to introduce another form that would provide interest and counterbalance to the existing school; and to bring a sense of individuality to the existing school's nondescript look. The architects were also challenged with a limited budget.

The new main entry features a prominent canopy and a curved roof that extends at an angle to a circular entry drive which introduces an exciting element to an otherwise drab exterior.

A media/library center is designed as a higher element with a shadow vaulted roof that repeats the form of the main entrance in a grander manner. This added prominence, which is the heart of the academic core, creates a focal area for the classrooms which are clustered around.

The form redirects attention to itself while transforming the existing building to a background element that complements the new addition. Colors and textures of materials used relate to both the existing school and the addition. Effective use of inexpensive materials, careful placement of programmed space, and strict attention to detail kept costs to a minimum.

The design approach has given the high school a new sense of energy. ■



Exterior entrance library-medical center

Interior

Media center/library

HIGH SCHOOLS
Renovations/Additions

F. J. REITZ HIGH SCHOOL EVANSVILLE, INDIANA

Veazey Parrott & Shoulders

Veazey Parrott & Shoulders
528 Main Street, Suite 400
Evansville, IN 47708
(812) 423-7729

Design team
Michael R. Shoulders, AIA, AICP
Principal Architect
Jackie B. Wynn, AIA
Project Architect

Client
Evansville-Vanderburgh School Corporation
(812) 435-8453

Grade span
9-12

Current building capacity
1,500

Current building area
324,000 square feet

Building area before addition/renovation
218,600 square feet

Total project costs
$24.3 million

Cost per square foot
$76 addition; $59 renovation

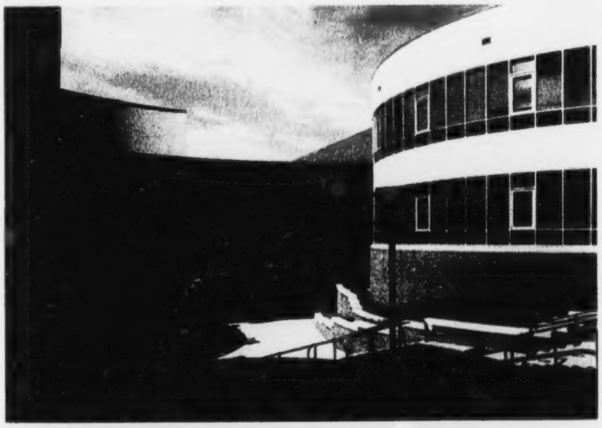
Space per student
216 square feet

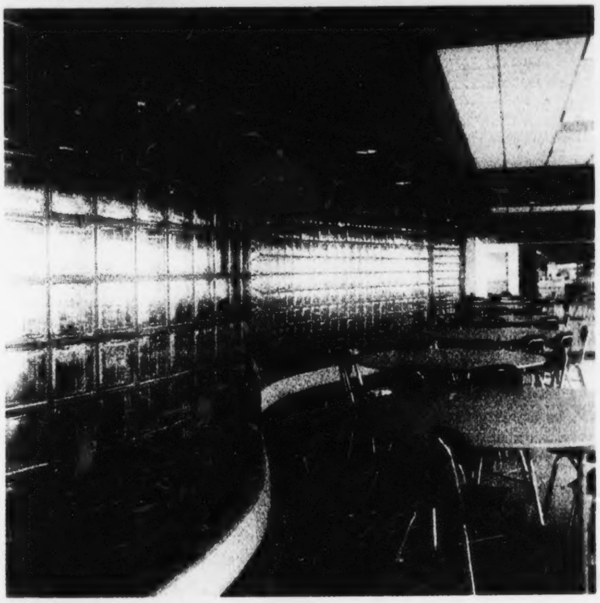
Cost per student
$16,180

Completion date
August 1992

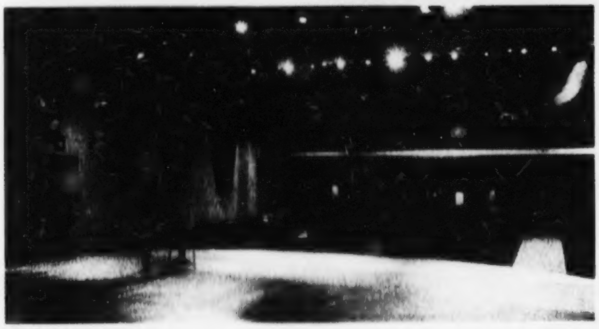
Proudly crowning a prominent hill overlooking Evansville and the Ohio River, F.J. Reitz High School and its famous bowl have defined the identity of an entire neighborhood for 75 years. An ambitious program was complicated by an ADA noncompliant five-story building on a hilly site, overcrowded parking, and a tight budget. An innovative six-phase renovation and addition solution was reached, which created a cutting-edge facility enabling the landmark to remain.

The media center and existing classrooms were expanded and updated to support teaching technologies well into the future. A new wing provides specialized classrooms and expanded administrative spaces. High-performance, flexible music and choral spaces replaced musically distressed spaces, and the auditorium was renovated to include a full functioning stage and control booth. With the implementation of closed-campus dining, the cafeteria was expanded and enlivened with a panoramic view of the Ohio River, skylights, an outdoor dining patio, and a serpentine glass block river of light saluting the river below. An elevator and unobtrusive ramping were added for accessibility and a new landscaped parking lot was sculpted into the hillside. Becoming a dramatic focal point, the new entry and student commons area bridge the two building wings while capturing the river view and facilitating access. ■


Entrance/raised commons


Cafetorium

Site plan


Performing arts center

RIO VISTA HIGH SCHOOL
RIO VISTA, TEXAS
Huckabee & Associates, Inc.

Huckabee & Associates, Inc.
204 River North Boulevard
Stephenville, TX 76401

Christopher M. Huckabee, AIA
(800) 687-1229

Design team
Tommie J. Huckabee, AIA
Principal-in-Charge

Christopher M. Huckabee, AIA
Design Architect

Michael D. King, AIA
Design Architect

Paul Svacek
Project Director

H. Ray Stringer
George E. Cox
Ronald Cannon
Kelly Wood
Project Team

Client
Rio Vista Independent School District
(817) 373-2241

Grade span
9-12

Current building capacity
550

Current building area
75,000 square feet

Total project costs
$3.5 million

Cost per square foot
$47

Space per student
136 square feet

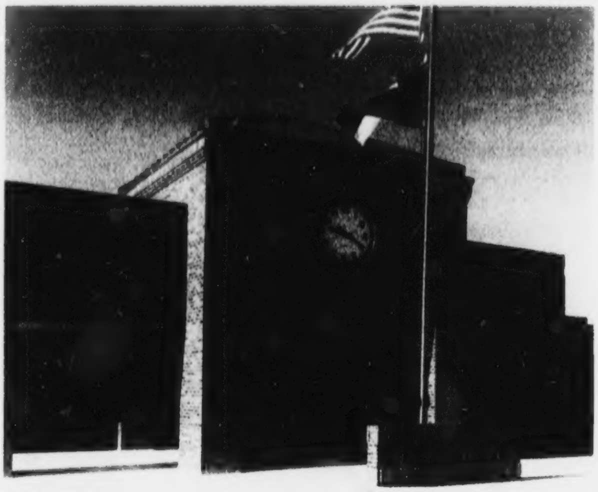
Cost per student
$6,400

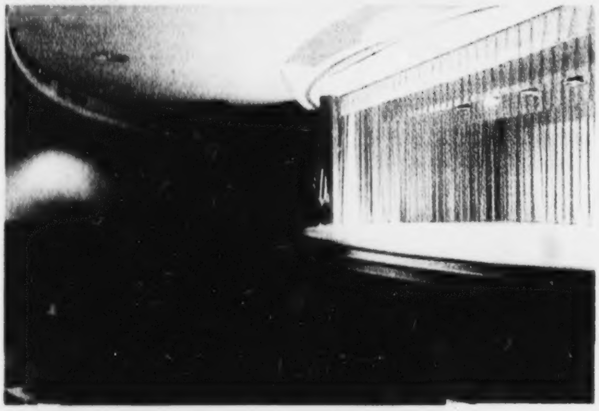
Completion date
July 1996

Floor plan

Rio Vista, Texas, is a small town south of the Dallas-Ft. Worth metroplex. A sudden growth in student population created the need for a new facility. Because Rio Vista has limited community facilities, particular emphasis was placed on community spaces and adult education. The solution was to create a facility with two entrances: one entrance for day-to-day school activities, and a separate entrance for community use. The community-use entrance opens into a large cafeteria with direct access to the auditorium, and glass windows that provide a view of the spectator gymnasium. Community events can be held here in conjunction with either adult education classes or daily classes.

The facility was planned with the library and resource center in the heart of the academic areas. Orbiting about the library and resource center are intensive instructional units, laboratories, and work centers. The arrangement of the instructional units provides for individual, undisturbed concentration as well as purposeful, well-coordinated instruction.


Exterior entrance


Auditorium

Gymnasium

Durable materials, including face brick walls and terrazzo floors, were used throughout the school to create a lasting facility. State-of-the-art networking was installed in the school to allow teachers and students access to a centrally located server database, CD-ROM library, and modems. A distance learning lab for instruction from remote teachers was also provided.

The result is a unique learning environment for the students of Rio Vista Independent School District. ■

ROSEVILLE AREA HIGH SCHOOL ROSEVILLE, MINNESOTA

Cuningham Group

Cuningham Group
201 Main Street SE, Suite 325
Minneapolis, MN 55414

Meg Parsons
(612) 379-3400

Design team
John Hamilton
Principal-in-Charge

Michael Schrock
Project Manager

Linden Carr
Specifications

Archana Bhasin

Stephanie Huss

David Hyde

Mohammed Lawal

Peter LeGeros

Patrick Mackey

JoAnn McCullough

Meg Parsons

Janet Peters

Brad Waldron

Client
Roseville Area Schools #623
(612) 635-1600

Grade span
9-12

Building capacity
2,100

Building area
342,500 square feet, plus 9,600 square feet built by the city of Roseville

Building area before addition/renovation
237,937 square feet

Total project costs
$22 million

Cost per square foot
$91 square feet, new; $36 square feet, remodeled

Space per student
163 square feet

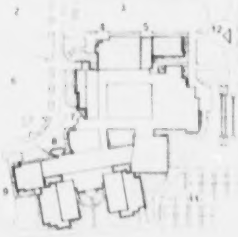
Cost per student
N/A

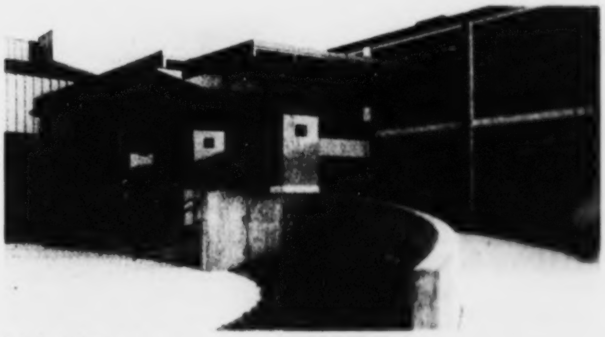
Completion date
September 1997

Roseville Area High School, originally constructed between 1951 and 1973, is in the process of a $22 million dollar renovation and expansion. When it is complete, a number of significant changes will allow teachers to teach more effectively. Applied learning spaces, teaming areas, small-group rooms, neighborhood groupings, staff teaming areas, and production spaces will be a part of the completed school.

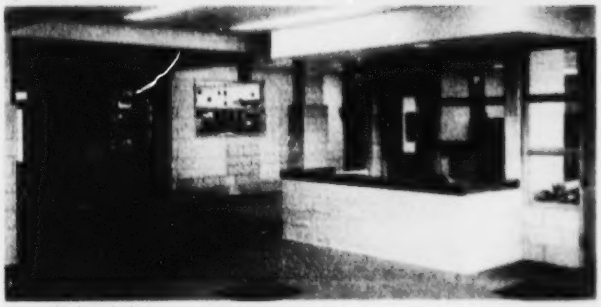
When the Roseville Area School District, ISD 623, looked to update its buildings for the 21st century, school officials asked, "How will future education be different than it was when these buildings were first constructed?" In 1991, the district hired the Cuningham Group, a Minneapolis-based architecture firm, to assist with the site-based planning. With the school's Facility Planning Committee, an educational plan was developed emphasizing future interdisciplinary teaching.

The resulting design includes two classroom neighborhoods of two houses each for 2,100 9th through12th-grade students. Included in these houses are computer labs, staff teaming areas, traditional and large teaming classrooms, student resource areas, and small group rooms, all of which will provide flexibility in teaching and learning for the future. All learning areas will have access to centrally networked voice, video, and data technology systems. Common areas such as the media center, cafeteria, gymnasium, administration offices, and school entries were given a special design emphasis.


Site plan


Exterior entrance

Gymnasium


Visitor check-in desk

In addition to the educational enhancements, the high school renovation includes a gymnastics gym sponsored by the City of Roseville. Materials and design of the additions were designed in harmony with the existing building. Careful phasing of the project allowed school to remain in session during construction, beginning September 1994. Construction will be complete September 1997. ■

SCRIPPS RANCH HIGH SCHOOL
SAN DIEGO, CALIFORNIA
Delawie, Wilkes, Rodrigues, Barker, and Bretton Associates AIA

Delawie, Wilkes, Rodrigues, Barker, and Bretton Associates AIA
2827 Presidio Drive
San Diego, CA 92110

David Bullock, AIA
(619) 299-6690

Design team
Homer Delawie, FAIA
Principal

Michael Wilkes, FAIA
Principal

Earl Miyamoto, AIA
Associate

Simon Bialobroda, AIA
David Gene Bullock, AIA

Client
San Diego Unified School District
(619) 293-8268

Grade span
9-12

Current building capacity
2,000

Current building area
182,689 square feet

Total project costs
$24.2 million

Cost per square foot
$90

Space per student
91 square feet

Cost per student
$12,100

Completion date
August 1993

Scripps Ranch High School is a unified assemblage of scholastic functions that are tightly organized to allow them to function efficiently as a unit. At the same time, the school is flexible enough to allow for joint community use and alternate future uses.

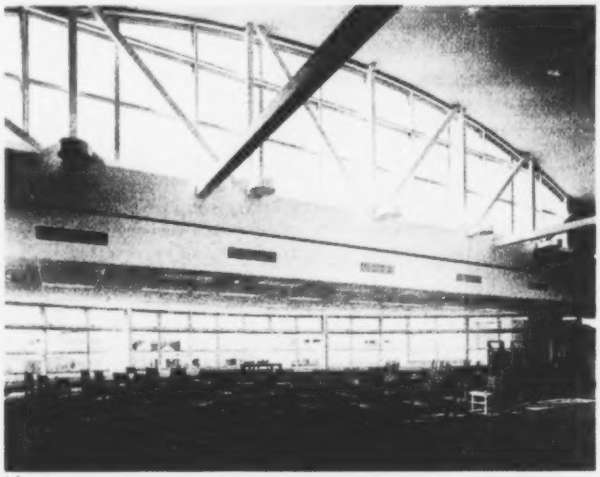
In response to today's unpredictable demographics, the program includes a contingency plan in which the school could be converted for community, office, commercial, or light industrial occupancy. The school is located in a research-oriented industrial park, and about half of the 65-acre site is reserved for future development.

The west portal is left open so that the school can be linked to new buildings in the industrial park to encourage joint programs and internships for the students.

The sloping site allowed the school to be stepped into the hillside, providing at-grade access at all levels. The school is made up of a series of one and two-story buildings linked by an unbroken upper-level circulation system of walkways and bridges. The buildings are tightly focused around the central courtyard, which serves as the circulation and social center of the campus. The three large assembly areas are clearly defined by their bow-truss roof systems. The gymnasium and theater entrances are organized to allow for after-hours community use while access to the rest of the school is closed. ■

Classrooms face into central courtyard

Theater


Library

Site plan

SPRINGDALE JUNIOR/SENIOR HIGH SCHOOL SPRINGDALE, PENNSYLVANIA

The Eckles Company Architects

The Eckles Company Architects
301 North Mercer Street
New Castle, PA 16101

R. Kay Thompson, AIA
(412) 652-5507

Design team
R. Kay Thompson, AIA
Principal-in-Charge

David A. Esposito, AIA
Project Manager

Craig R. Scott, AIA
Project Architect

Karen L. Landau, AIA
Project Architect

Stephen F. Farris, PE
Structural Engineer

Pascoe Engineering Consultants, Inc.
Mechanical/Electrical Engineers

K.A. Gales & Associates, Inc.
Civil Engineers

D. Palombo Associates
Landscape Architect

Client
Allegheny Valley School District
(412) 274-5300

Grade span
7-12

Current building capacity
824

Current building area
153,910 square feet

Building area before addition/renovation
146,250 square feet

Total project costs
$7.42 million

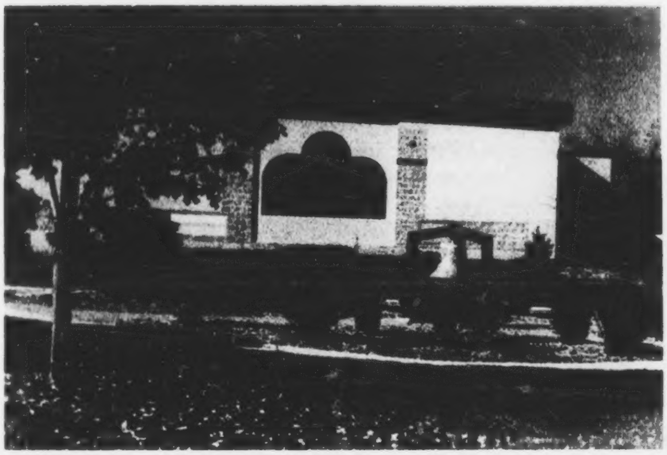
Cost per square foot
$48

Space per student
187 square feet

Cost per student
$9,000

Completion date
September 1996

The Allegheny Valley School District, located in suburban Pittsburgh, Pa., entered into a construction program to bring its junior/senior high school up to current standards. The school directors and administration identified the science department as the focus of the project. This focus on science is appropriate since the homestead of Rachel Carson, internationally known author and environmentalist, is adjacent to the high school site. The improvements to the science department necessitated a complete reconfiguration of the existing science classrooms to develop new state-of-the-art classroom/labs. The department contains a physics lab/lecture classroom, a chemistry lab/lecture classroom, two biology classrooms which share a lab space, a physical science lab/lecture classroom, a life science lab/lecture classroom, a greenhouse, and a special science classroom dedicated to Rachel Carson. The Rachel Carson Science Classroom is constructed of environmentally conscious "green" building materials.



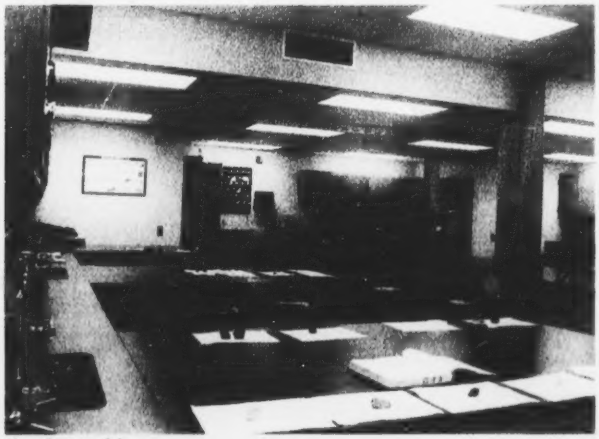
Courtyard

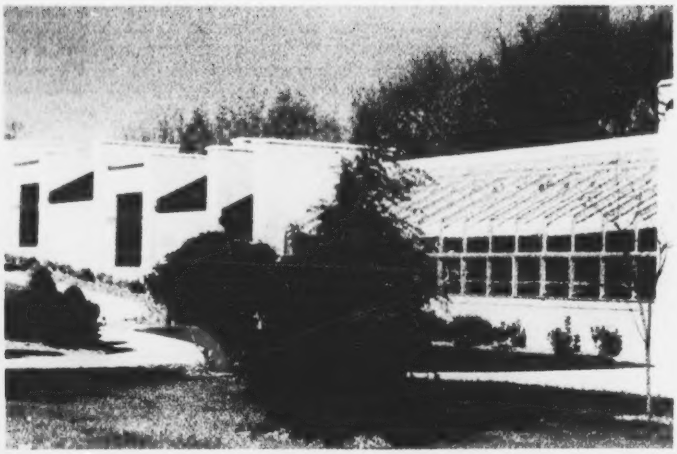
Conference room window

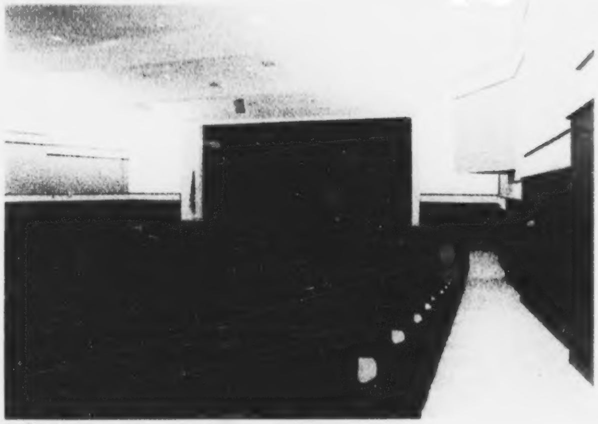
Accessibility for the disabled also was identified as an important aspect of the program. The existing school was constructed with four separate floor elevations in seven separate wings or areas. Accessibility was achieved with a combination of ramps and elevators. The new addition to the science wing is a ramped corridor which connected the gymnasium, administration areas, and bus entrance through the science area to the library and other areas of the building. Existing classrooms and public spaces are now accessible to all building users.

The existing heating systems were replaced and air-conditioning was installed in most teaching spaces. The

Exterior


Shared science lab




Auditorium

new high efficiency systems are part of the district's effort to cut energy use and be more environmentally friendly. The inefficient glass and aluminum curtain walls were removed and replaced with energy efficient insulated wall construction with new low-E glazed aluminum windows.

The library was renovated and expanded by the construction of a new classroom/conference room also dedicated to the memory of Rachel Carson. This multipurpose teaching space features "green" materials such as natural fiber wool carpeting, renewable domestic hardwood trim and casework, and low VOC paint. The classroom also features an art glass window depicting wildlife along the Atlantic Ocean coastline where Rachel Carson lived and wrote *Silent Spring*.

The inclusion of technology throughout the building brings computer technology, access to the Internet, and distance learning to every teaching space via a comprehensive data/video/voice communication system. ■

Cafeteria detail

Site plan

SPRINGFIELD HIGH SCHOOL OF SCIENCE & TECHNOLOGY SPRINGFIELD, MASSACHUSETTS

Caolo & Bieniek Associates, Inc.

Caolo & Bieniek Associates, Inc.
435 Cottage Street
Springfield, MA 01104-4005

Curtis A. Edgin, AIA
(413) 734-3139

Design team
Vito Caolo, AIA, NCARB
Principal

Curtis A. Edgin, AIA, NCARB
Project Architect

Michael G. Morello
Stephen C. Lobik
James M. Hanifan, AIA, NCARB
Dale Sessions
James B. Bright
Project team

Client
The Public Schools of
Springfield, Massachusetts
(413) 787-7087

Grade span
9-12

Current building capacity
1,600

Current building area
264,346 square feet

Building area before addition/renovation
206,426 square feet

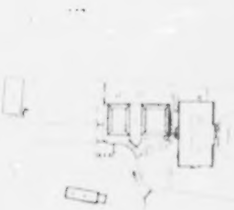
Total project costs
$22 million

Cost per square foot
$83

Space per student
165 square feet

Cost per student
$13,760

Completion date
August 1996

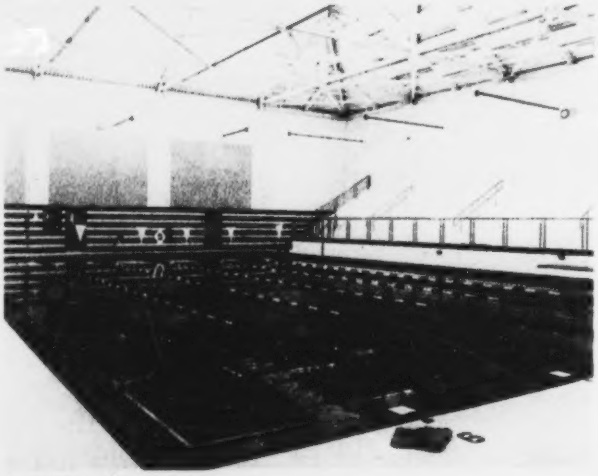

Site plan

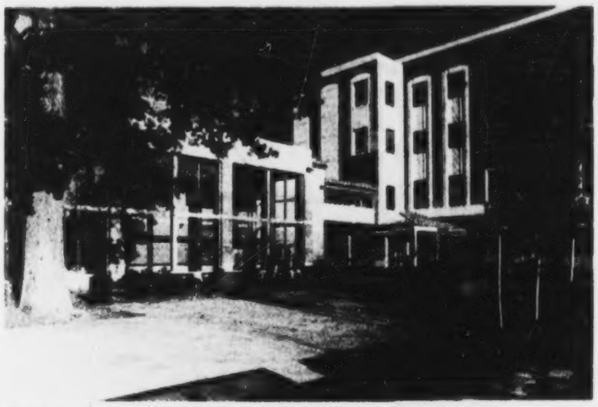
The Springfield High School of Science and Technology was designed to provide its 1,600 students, faculty, and surrounding community with access to state-of-the-art technology well into the 21st century. The project involved the renovation of an 180,000-square-foot office building to create an education facility capable of housing all the necessary classrooms, administration offices, a cafeteria, and a library. The library also functions as the media center with two teaching stations, and more than 30 computer stations capable of accessing information throughout the Springfield school system. In addition to the library, all classrooms are equipped with six computers and a multimedia teaching station.

A sports complex addition also serves as a main entrance to the high school and has an indoor and outdoor plaza. This complex houses a competition size pool, gymnasium, racquet ball courts, and four classrooms. The education facility and sports complex were designed for each area to function independently allowing public usage after school hours.

The project also included the design of the school department's Training and Professional Development Center. This center includes seminar rooms, computer labs, and a telecommunications center that serves the city's 42 schools. The education facility and sports complex are networked to the telecommunications center by a fiber-optic infrastructure allowing communication throughout the world. ■

Typical classroom


Competition pool


Sports complex entry

ADLAI E. STEVENSON HIGH SCHOOL LINCOLNSHIRE, ILLINOIS

OWP&P Architects, Inc.

OWP&P Architects, Inc.
570 Lake Cook Road, Suite 200
Deerfield, IL 60015

Pat Rosenzweig
(847) 940-9600

Design team
Andrew Mendelson, AIA
Project Principal

Richard Dewar, AIA
Project Manager

Michael Stein, AIA
Principal Designer

David Johnson, AIA
Project Architect

Stuart Brodsky, AIA
Mary Ford-Cavanaugh
Wendy Schaedel
Thomas Roth, AIA

Client
Adlai E. Stevenson District 125
(847) 634-4000

Grade span
9-12

Current building capacity
1,200

Current building area
250,000

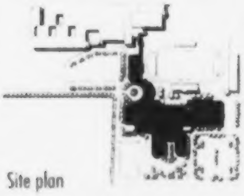
Total project costs
$28.65 million

Cost per square foot
$115

Space per student
208 square feet

Cost per student
$23,872

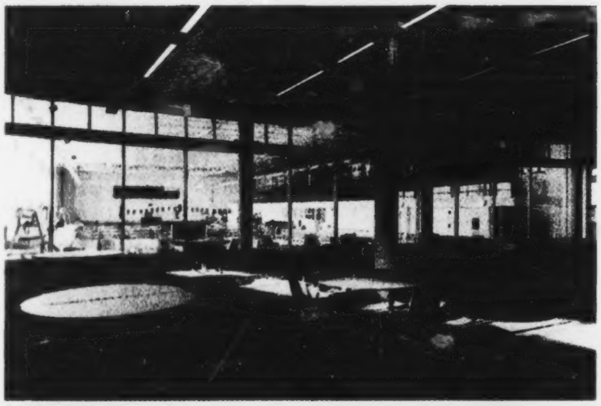
Completion date
Fall 1996

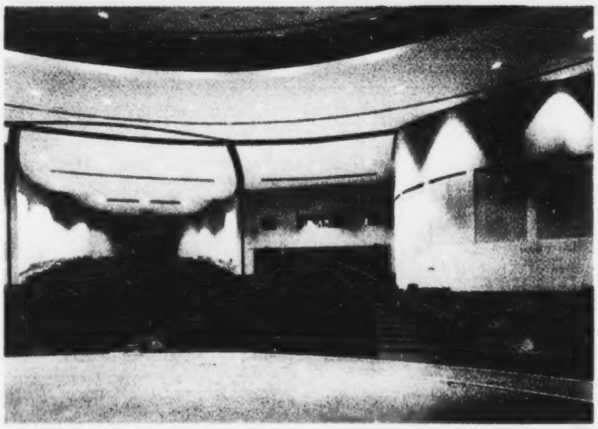

Site plan

Adlai E. Stevenson's new addition, designed as a self-contained, 1,200-student school, includes 60 classrooms, a 1,200-seat divisible auditorium, a 50-meter pool, and a field house.

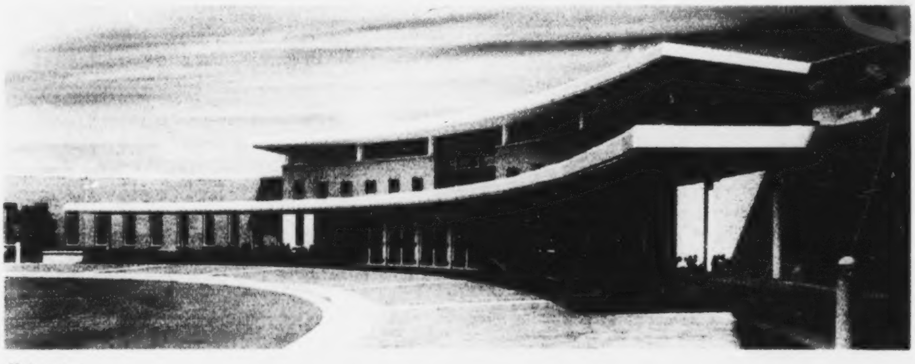
The large space of the 1,200-seat auditorium can be divided with rotating platforms into two 240-seat theaters and a 720-seat auditorium. Each section is acoustically isolated and fitted with its own stage and equipment, allowing for simultaneous performances.

Through movable bulkheads, the eight-lane, 50-meter pool can be divided into diving, teaching, and exercise areas. The size of the pool also allows Stevenson to host statewide and national swimming events. A commons area can hold 200 to 300 viewing seats for swim meets, in addition to the 650 in the pool area. The commons is also used as a lunchroom and lobby for the auditorium's evening performances.


Interior commons


Turntable divisible auditorium

The classroom addition, with its own entrance, maintains a separate identity with glassy links to the rest of the campus. It was sited so that the entire wing could be leased out if enrollment dropped. This module was designed like an office building with elevators and systems in a central core, allowing the classrooms to be reworked to accommodate an office in the future, if enrollment changes. ■


Main entry

VICKSBURG HIGH SCHOOL VICKSBURG, MICHIGAN

Tower Pinkster Titus Associates, Inc.

Tower Pinkster Titus Associates, Inc.
1000 S. Burdick Street
Kalamazoo, MI 49001
William F. Johnson, AIA
(616) 343-6133

Design team
William F. Johnson, AIA
Principal-in-Charge
Jim Ross
Project Manager
John R. Titus, PE
Mechanical Engineer
Paul J. Bede, PE
Electrical Engineer
Michelle J. Straube
Interior Designer

Client
Vicksburg Community Schools
(616) 649-0550

Grade span
9-12

Current building capacity
800

Current building area
171,700 square feet

Building area before addition/renovation
93,180 square feet

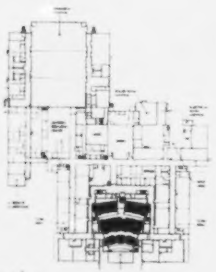
Total project costs
$9.98 million

Cost per square foot
$58

Space per student
214 square feet

Cost per student
$12,481

Completion date
February 1994



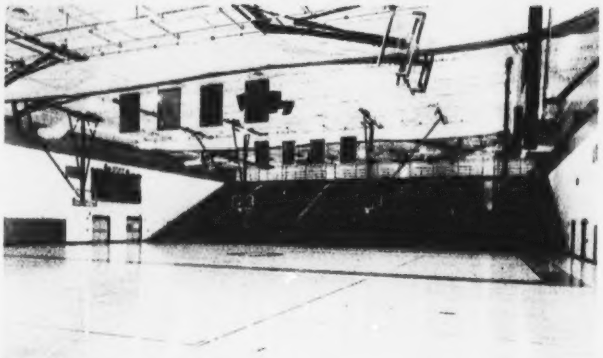
Site plan

Vicksburg High School underwent extensive renovations as part of a district-wide $19 million building program, affecting four buildings.

A new three-court gymnasium was added to the facility, leaving the former athletic space available for a large media center and classroom area. Design of the new gymnasium provided 3,000 seats and flexibility to provide practice and game facilities for boys' and girls' high school athletics, as well as community-sponsored programs.

A stage at one end of the old gymnasium had served as a theater for the school's musical and dramatic performances. The building program included a new 1,000-seat auditorium facility—with divided lecture areas, full-fly stage, set shop, and storage and dressing rooms—which was added to the front of the high school. The auditorium was built between two existing classroom wings, making it easily accessible for students.

A strong focus of the building program was the development of a sophisticated computer networking system. Designed for satellite linkage and transmission capabilities, it allows students access to information as history is being made. ■

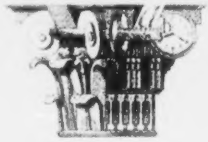


Gymnasium

Media center

Auditorium

HIGH SCHOOLS
Special Purpose Facilities



WEST ANCHORAGE HIGH SCHOOL SCIENCE CENTER ANCHORAGE, ALASKA

Bezek • Durst • Seiser, Inc.

ARCHITECTURE AWARD WINNER

Bezek • Durst • Seiser, Inc.
3330 C Street, Suite 200
Anchorage, AK 99503
Robert N. Durst, AIA
(907) 562-6076

Design team
Dan Seiser, ICBO
Masterplanning and Project Architect
Robert N. Durst, AIA
Masterplanning and Project Designer
Gene Scholes
Educational Facility Planner
Jerry McCarty
Job Captain
LCMF
Structural
Adams Morgenthaler
Mechanical/Electrical
Phukan Consulting Engineers
Geotechnical & Survey
Bratslavsky Consulting Engineers
Civil
Earthscape
Landscape
Estimations, Inc.
Cost Estimate

Client
Anchorage School District
(907) 348-5125

Grade span
9-12

Current building capacity
2,000

Current building area
22,000 square feet

Total project costs
$4.47 million

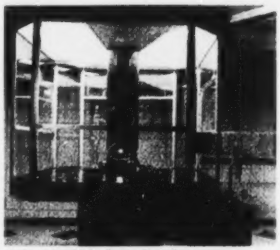
Cost per square foot
$203

Cost per student
$2,236

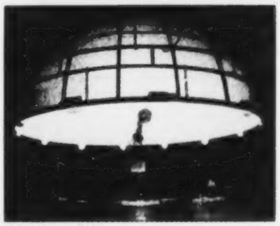
Completion date
January 1995

West Anchorage High School had worn out, non-compliant science labs designed in the 1950s. Code and building system deficiencies would not allow renovation or expansion of these existing spaces. The tight budget had to cover contemporary instructional technology, separate lab and instructional areas that could be easily supervised, and lab furniture designed for group problem-solving activities.

The highly efficient, stand-alone design by Bezek•Durst•Seiser provides 92 percent net usable square footage. The dynamic center core transforms circulation space into a versatile astronomy lab and multimedia presentation space, complete with a three-dimensional, retractable projection dome. The clerestoried core also serves as a popular, informal seating area, enhanced by the inlaid astronomical symbols of "1 percent for Art" and the built-in aquariums and climatarium displays. Here, with the illuminated tackboards and cabinets showcasing student projects, the excitement of science is brought out of the classrooms.



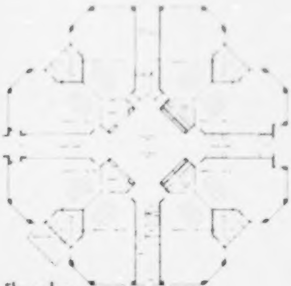
ADA accessible fume hood



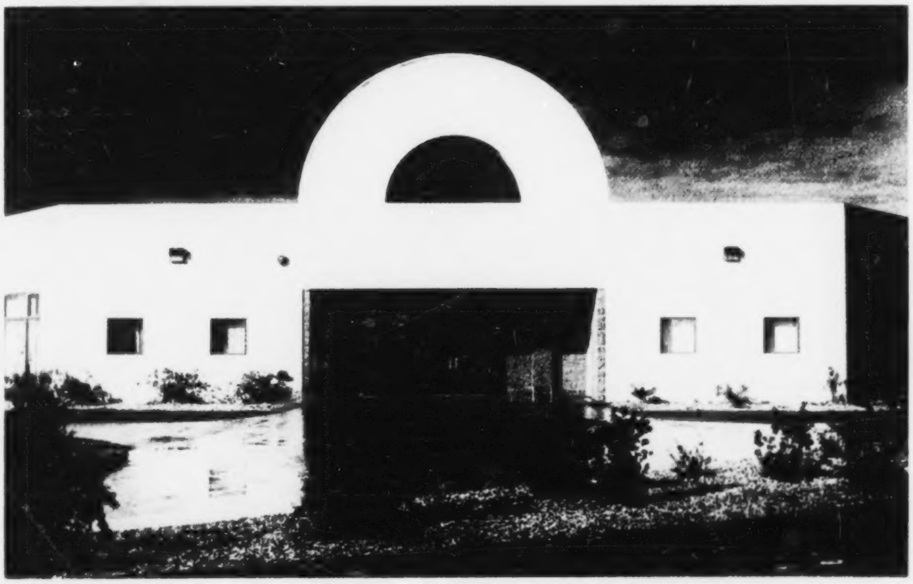
Astronomy lab

The combined lab and instructional classrooms feature custom-designed fume hoods and island lab stations that provide unrestricted supervision. Large underfloor and overhead service spaces facilitate equipment maintenance and future technology flexibility.

The Science Center is becoming not just a focal point for the school but also a magnet facility for the community, attracting younger students to the sciences. ■



Floor plan



Community entrance

HIGH SCHOOLS
New Construction

WINTER SPRINGS HIGH SCHOOL
WINTER SPRINGS, FLORIDA
SCHENKELSHULTZ

1997
ARCHITECTURE
AWARD
WINNER
LEARNING BY DESIGN

SCHENKELSHULTZ
200 E. Robinson Street,
Suite 300
Orlando, FL 32801

J. Thomas Chandler, AIA
(407) 872-3322

Design team
J. Thomas Chandler, AIA
Senior Vice President

Daniel M. Tarczynski, AIA
Director of Design

Timothy Eckmair, AIA
Project Architect

Dale R. Ulmer, AIA
Project Manager

Client
Seminole County Public
Schools
(407) 320-0000

Grade span
9-12

Current building capacity
2,529

Current building area
360,000 square feet

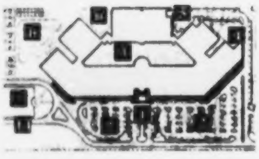
Total project costs
$31.5 million

Cost per square foot
$88

Space per student
142 square feet

Cost per student
$12,455

Completion date
June 1996


Site plan

Adaptability and flexibility were primary concerns for the architects, SCHENKELSHULTZ, and school administrators in designing Winter Springs High School, which was to serve as a multifunctional center for the entire community.

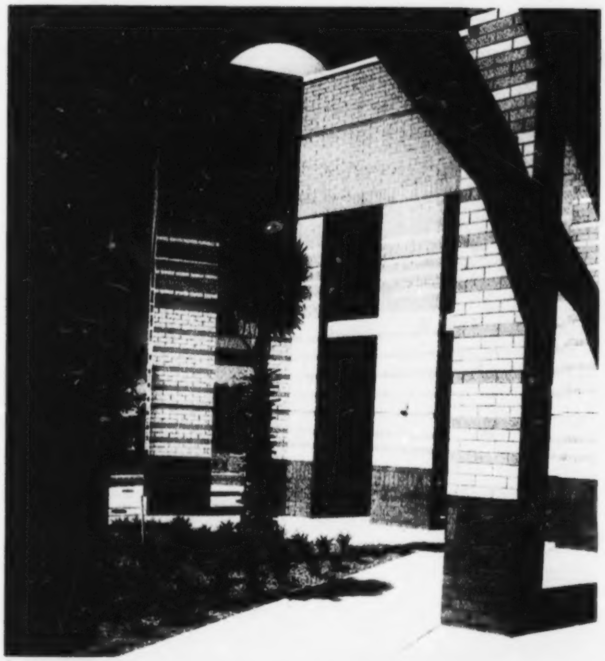
The 360,000-square-foot school is located on a parallelogram-shaped plot of land, which challenged the design team to conceptualize a plan that resulted in a campus easy to circulate around, maintain, and add to. The classrooms and laboratories are housed in four two-story academic clusters to allow for efficient, flexible, and functional spaces.

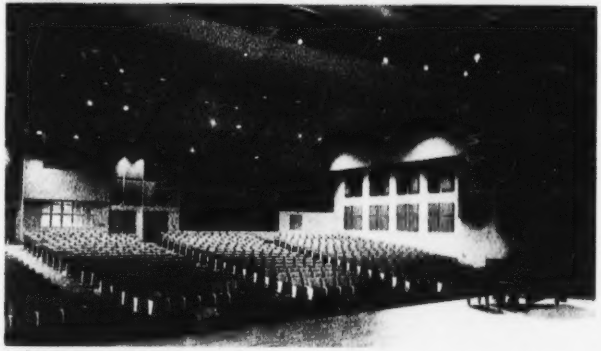
The administration area is located at the central main entrance to provide security and control, opening into a courtyard which serves as a gathering place for students and provides a setting for community events.

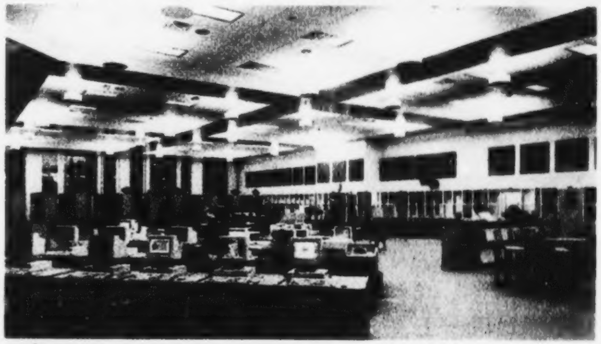
A high-tech networking system was created to integrate voice, data, and video, forming the foundation for a broad spectrum of instructional applications and multimedia programming.

Concrete was used for the framework and precast concrete joist for support of the second story. A single-ply membrane and aluminum coping system for the metal-clad barrel-vault roof provides energy conservation. A chilled-water HVAC system with heat recovery provides cost-effective, high-efficiency conditioning of the facility.

Dianne Kramer, director of facilities planning and construction, states, "We are proud of our newest facility and grateful to the many people who dedicated themselves to making it a success. ■


Entrance


Auditorium


Media center

YALE HIGH SCHOOL
YALE, MICHIGAN

Roy G. French Associates, Inc. - Architects & Planners

Roy G. French Associates, Inc.
150 Elizabeth Lane
Rochester, MI 48307

David G. French, AIA
(810) 656-1377

Design team
David G. French, AIA
Principal-in-Charge

Douglas A. La Ferle, AIA
Principal-Design

T.J. O'Connor, AIA
Project Manager

Barton Malow Company
Construction Managers

BCF Engineering, Inc.
Mechanical/Electrical

L & A Structural Engineers
Structural

BMJ Engineers
Civil

Client
Yale Public Schools
(810) 387-3231
Ralph Darin
Superintendent

Grade span
9-12

Current building capacity
600

Current building area
112,000 square feet

Total project costs
$9.6 million

Cost per square foot
$86

Space per student
186 square feet

Cost per student
$16,024

Completion date
September 1995

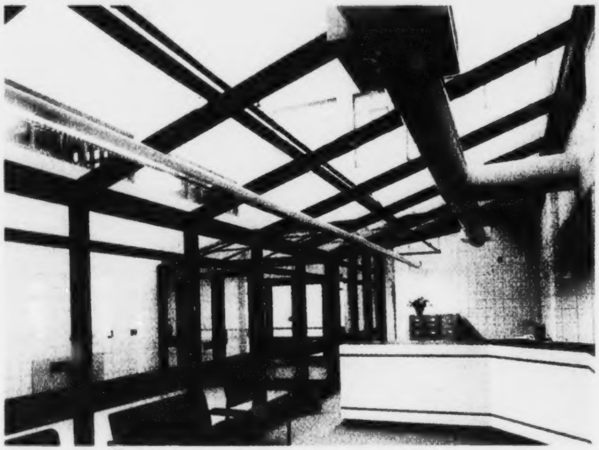
Floor plan

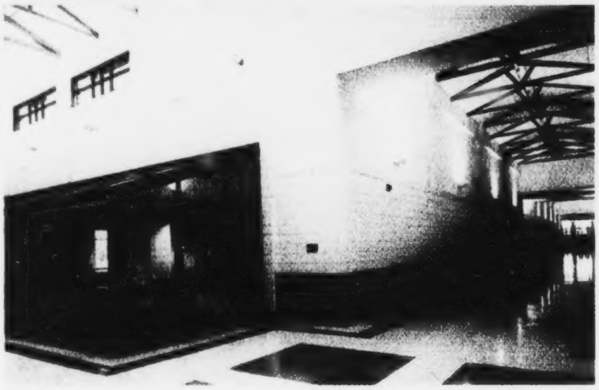
The school district of Yale, located in the heart of Michigan's thumb area, was in desperate need of a new high school facility. Students were attending half-day sessions in order to accommodate the student population in the old building.

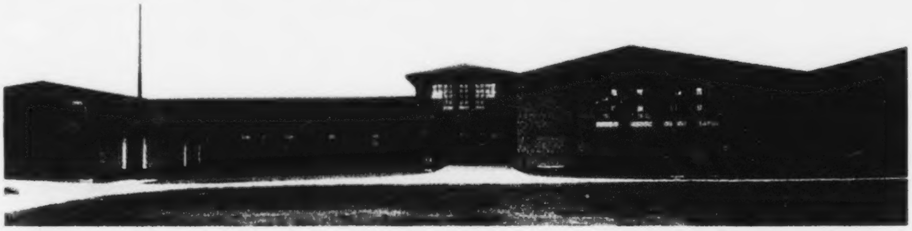
After several failed bond issue attempts and final passage of a $13.8 million bond issue, the challenge was to fit the new high school into an already congested 56-acre campus containing an existing elementary and middle school. With judicious use of the land, the architectural firm of Roy G. French Associates, Inc. was able to design this school to fit into the existing campus setting without creating a feeling of overcrowding.

The angular lines of the school are enhanced by the selection of bold terrazzo floor colors and patterns. The well-planned placement of windows, two-story vaulted ceilings in many areas, and the omission of student lockers in the "Main Street" corridor create a very bright and spacious learning environment. Designed as the symbolic "heart" of the school, the media center is sized to house several classrooms simultaneously, providing ample room for students.

Each of the corridor wings provide educational "houses" for instruction in a variety of subjects: mathematics, fine arts, language, social studies, science, and music. Additional features include 21 classrooms, laboratories, lecture rooms, and a multipurpose room with performance stage and gymnasium. ■


Administrative office


Corridor


Exterior

K-12
New Construction

CHELSEA PUBLIC SCHOOLS
CHELSEA, MASSACHUSETTS

Sverdrup Facilities, Inc.

Sverdrup Facilities, Inc.
Two Center Plaza, 7th Floor
Boston, MA 02108

James W. Mitchell
(617)742-8060

Sverdrup Facilities is providing Construction Program Management services for the City of Chelsea's entire public schools program. Chelsea is the first city in the Commonwealth of Massachusetts to replace all of their school facilities at one time. The program consists of 674,000 square feet of new and renovated facilities.

Pat Spector
Progam Executive

James W. Mitchell
Program & Construction Manager

Mark T. Sperberg
David T. Hartt
Project Managers

Jerry Clement, FAIA
Design Manager

Lonnie Lange
Construction Director

Client
City of Chelsea,
Chelsea Schools Program
(617) 889-8337

Grade span
Pre-K-12

District-wide capacity
5,500

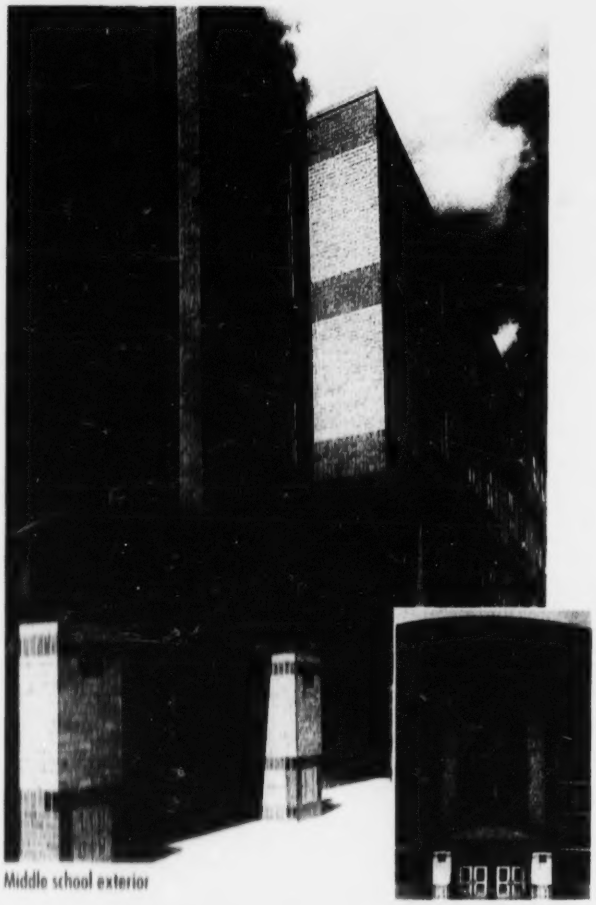
Total program cost
$116.2 million

Completion date
Phase 1—September 1996
Phase 2—September 1997

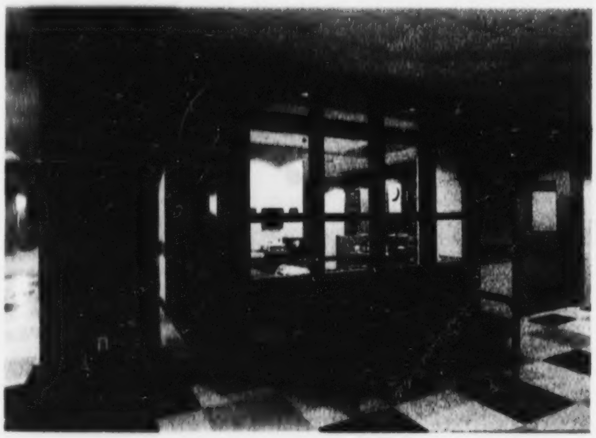
Chelsea, Massachusetts, located just outside the Boston city limits, is a diverse community that has encountered many of the urban issues confronting America's cities today. The Chelsea school committee faced not only a fast-growing student population, but also crumbling facilities that dated back to the late 1800s and early 1900s. And the schools did not have amenities, such as gymnasiums, cafeterias, and computer labs, that most school districts take for granted. Also, there were serious safety/health issues throughout all the schools—poor ventilation, large amounts of asbestos and lead paint, inadequate fire protection, and collapsing firewalls. The schools were not handicapped accessible.

Chelsea was granted special legislation to aid in the replacement of their entire school facilities. This legislation gave Chelsea the means to complete a very ambitious undertaking, allowing the city to deviate from traditional construction dictated under Massachusetts General Laws. To complete the program the city elected to use Construction Program Management services. Sverdrup Facilities was selected to assist Chelsea with the $116.2-million school building program that included assisting in the selection and management of the design work of the architects.

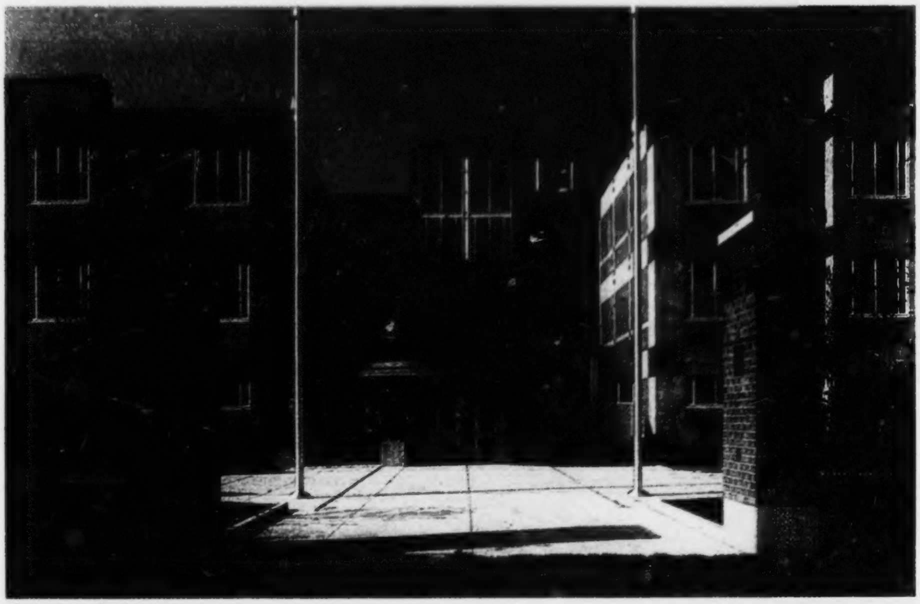
The Massachusetts legislators required Chelsea to have construction under way by June 1994 or it would lose funding. This required an aggressive schedule in order to secure funding and completion of the elementary, mid-



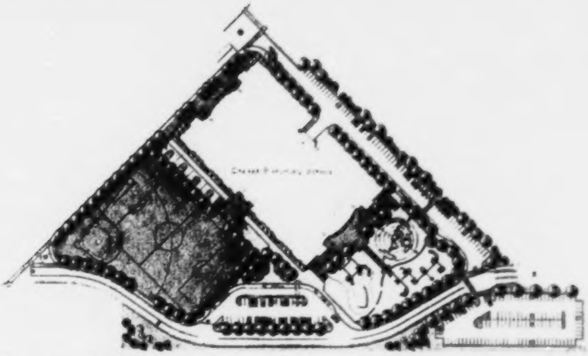
Middle school exterior



Middle school interior



Elementary school exterior



Elementary school site plan

dle and high schools for occupancy prior to the start of the 1996-97 school year. Working with Chelsea, Sverdrup and the design teams (HMFH Architects of Cambridge, Massachusetts, designer of the elementary and middle schools; Symmes, Maini, McKee & Associates, and Perkins & Will of Cambridge and Chicago, designers of the new high school respectively; and Finegold Alexander & Associates of Boston, designer of the new citywide early childhood learning facility) developed standards for design and fast-tracked work at the elementary and high school sites. This also included the development of procurement packages of key systems and the continual monitoring of construction costs throughout the entire design process.

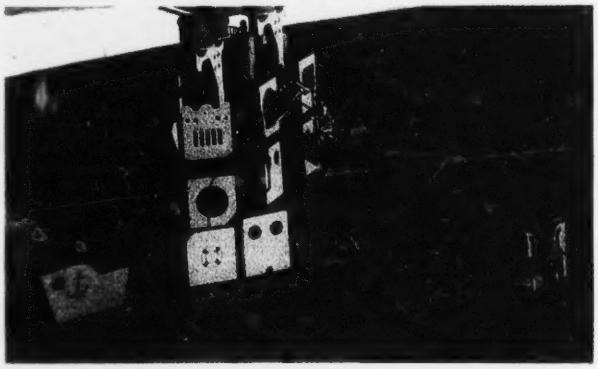
Six months after Sverdrup began managing the program, construction started on two sites, thus meeting the funding deadline which secured funds for the remainder of the project. In addition to managing more than 40 consultants on a fast-track schedule, Sverdrup provided site evaluations, food service management plans, O&M management planning, security planning, integrated technology system planning, and management of the owner-controlled insurance program known as OCIP or wraparound insurance.

After issuance of advanced site work packages, advanced structural steel contracts were let. This allowed the projects to have steel onsite during the late winter/early spring of 1995, enabling the contractor (Suffolk Construction of Boston) to hit the ground running on the new elementary school. Work also proceeded at a rapid pace at the new high school (R. W. Granger and Sons of Shrewsbury, Massachusetts) and at the new middle school (Turner Construction of Boston). Working conditions at the middle school were compounded by the fact that the new building was being constructed a mere eight to 10 feet off the face of the existing Williams School while it was occupied by 1,500 students.

Under the recommendation of Sverdrup Facilities, Chelsea instituted an OCIP. Chelsea purchased all insurance for the project normally provided by contractors. In turn, the contractors and subcontractors omitted cost for specific insurance from their bid. This saved Chelsea approximately 10 percent on the cost of insurance for the project compared with the traditional method of contractor provided insurance. The initial savings have been used to enhance the program. This included purchasing additional furniture, fixtures and equipment while assuring adequate funding for the new citywide early childhood learning facility, which was added to the program in late 1994. In addition to the initial savings, Sverdrup's aggressive safety management has the potential of saving millions in insurance costs that would otherwise be lost to the contractors and insurance carriers.

New Beginnings, Innovative Ideas

The former Receiver for Chelsea said, "Sverdrup has been . . . quite extraordinary in bringing to the table a depth of both technical, but also a human capacity that really has been central to making this process work. The number of tasks to be accomplished in a very short time



Elementary school play area

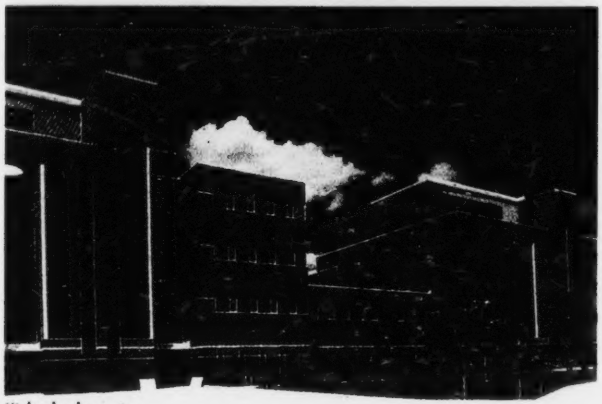
would have been even beyond the imagining of a city this size had we not been able to draw on the extraordinary organization depth of a national architectural/engineering and construction firm."

Chelsea elementary and middle schools are based on a "school-within-a-school" concept. Chelsea has four elementary schools within one 253,000-square foot building and two middle schools within one 140,000-square foot structure. Benefits include shared spaces between the schools such as libraries, cafeterias, gymnasiums, etc. Each school within the elementary and middle school complex has a separate entrance and a designated color and shape—triangle, square, diamond or circle—so students know what school they are in.

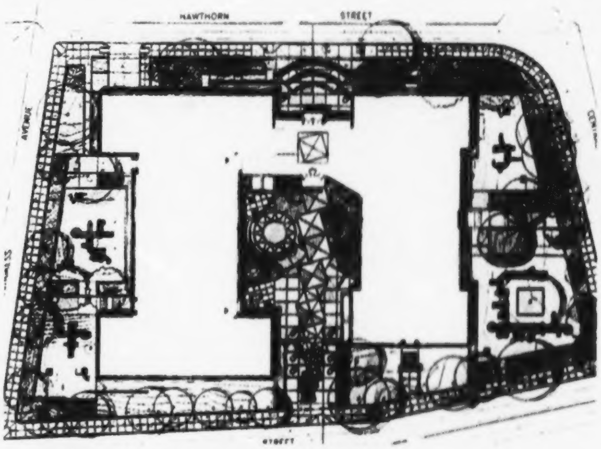
The new elementary school building houses 2,200 students—four schools of 550 children each. The 253,000 square foot structure includes 88 classrooms, community rooms for meetings, teacher resource rooms, four computer classrooms, four art classrooms, four music classrooms, special education/needs classrooms, two cafetoriums, two health suites, two gymnasiums, and a central library.

The 140,000 square foot middle school facility houses 1,100 students—two schools of 600 and 500 pupils, respectively. The structure includes 51 classrooms, both wet and dry science classrooms, teacher resource rooms, language classrooms, two computer classrooms, special education/needs classrooms, two art classrooms, a library, cafeteria, community music room, health suite and gymnasium.

The high school houses 1,000 students with instructional themes focused on telecommunications and technology, transportation and commerce, and health and human services. The 151,000 square foot facility contains 45 classrooms, both wet and dry science classrooms, technology laboratories, language classrooms, teacher resource rooms, two art classrooms, two music classrooms, a library, cafeteria, day care facility, student counseling space, and a gymnasium. Exterior amenities include an all-weather track, new lighted football and soccer field, plus a new baseball complex.


High school exterior

A new citywide early childhood learning center—the Shurtleff School—will house approximately 800 pre-kindergarten and kindergarten students. When the renovation and expansion of the school is completed, the 130,000 square foot facility will have 52 classrooms, special education/needs classrooms, teacher resource rooms, two elevators, a new kitchen, and a community space/auditorium.



Shurtleff School early childhood learning center site plan

Form and Flexibility

Classrooms in the facilities were designed to allow for changing needs with respect to both functionality and technology. Each classroom has core elements to accommodate different grades with minor modifications.

Laboratory classrooms are also flexible with respect to wet or dry science. All schools are handicapped accessible and comply with the latest architectural access board regulations adopted by the Massachusetts State Building Code. All schools have elevator access and other amenities to make them user-friendly.

The schools have incorporated the latest in life safety with respect to fire protection, security (CCTV, card access, etc.), communications, etc. Each facility is designed to act as an emergency shelter for the community and is equipped with emergency generators, etc. All of the schools are fully air-conditioned. Classrooms contain telephones, televisions, computer workstations and a new public address system.

The schools are not only for students. The facilities' multipurpose rooms, athletic fields, gymnasiums, and auditorium spaces are open for public use. New play areas on school property total 490,320 square feet, compared to 42,120 square feet previously. The 448,200 square foot increase is equal to about nine and one-half football fields. Parents and children alike have benefited from school playgrounds.

Schools Opened On Schedule, On Budget

To the residents of the Chelsea Public Schools Program—new schools, renovations, and expansions mean more than fresh paint, new carpet, and more space for their children's education. These facilities symbolize the realization of long-held dreams and new hope for the city's future.

The new era of educational opportunity for Chelsea was unveiled in ribbon-cutting ceremonies August 28, 1996 when the first of the new schools opened. Many residents of the city of Chelsea have remarked that the "new Chelsea" has sparked pride in residents, uplifting the attitudes of not only the students, but the community as a whole. ■

K-12
Special Purpose Facilities

M.O. CAMPBELL EDUCATIONAL CENTER
HOUSTON, TEXAS

Dansby & Miller, AIA, Architects

Dansby & Miller, AIA, Architects
102 E. Edgebrook
Houston, TX 77034
William K. Miller, AIA
(713) 941-2751

Design team
William K. Miller, AIA
Principal
Sang Lee, AIA
Associate
Romney E. Dansby, AIA
Principal
Roger H. Brownlow
Architect
Schmitz & Lamb Engineers
Structural Engineers
JSF, Inc.
Mechanical & Electrical Engineers
Boner Associates
Acoustical Engineers
Gerald R. Brown
Landscape Architect

Client
Aldine Independent School District
(713) 449-1011

Grade span
Multiuse (all grades)

Current building capacity
4,500

Current building area
100,000 square feet

Total project costs
$10.5 million

Cost per square foot
$105

Space per student
22.2 square feet

Cost per student
$2,333

Completion date
June 1996

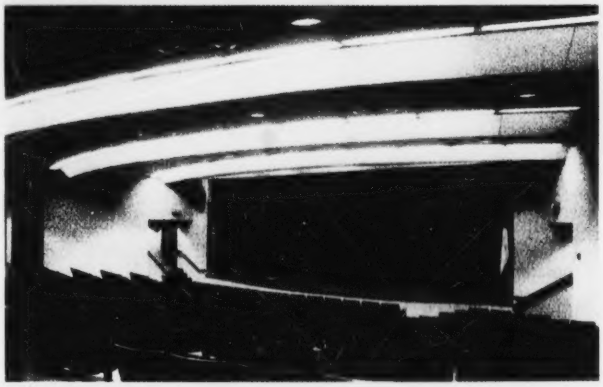
The M.O. Campbell Educational Center was designed to serve many school and community functions and to be as flexible as possible in its use. In addition to the 4,500-seat capacity sports arena, the building features a teaching theater with 250 seats, central fine arts and athletic offices, and a meeting room that seats 225 persons.

The main building seating area is divided into four combinations of seating based on capacity needed and open floor area required. The north end can be divided with drop curtains to create a 1,200-seat capacity space for musical performances or lectures.

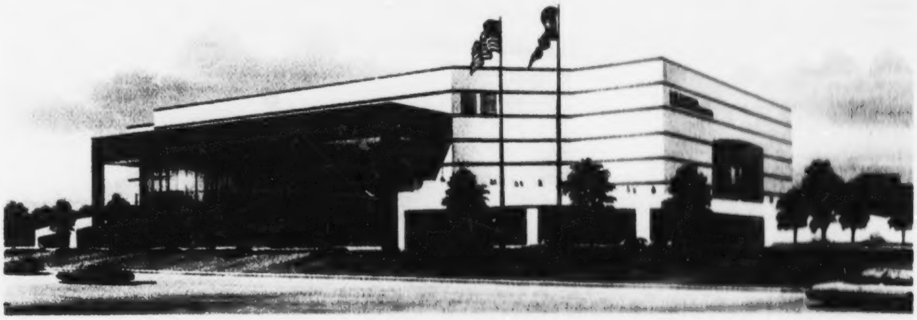
In the first few months of the facility's operation, the building already has been used for a number of purposes, including: district administration meetings, CPR training programs, instructional computer technology meetings, athletics training meetings, special-education development, a district-wide faculty assembly, performing arts, ROTC practice, graduation exercises, Special Olympics, Houston Area Co-Op, a science fair and job fair, FFA exhibits and shows, and volleyball and basketball tournaments.

A movable wood floor is laid for basketball and volleyball events. Four different functions can be held concurrently, and the facility is being used almost every day for one or more various functions. ■

Arena


Auditorium

Site plan


Exterior

K-12
Special Purpose Facilities

JONES ACADEMY-GIRLS DORMITORY HARTSHORNE, OKLAHOMA

Holleyman Associates

Holleyman Associates
2310 SW 89th, Suite F
Oklahoma City, OK 73159
Mike Holleyman, AIA
(405) 691-0039

Design team
Mike Holleyman, AIA
Principal-in-Charge/Specifications
Michael Abla, AIA
Project Designer/Project Manager
Harold Matthews
On-Site Inspector
McMinimy & Associates
Structural Engineer
Davenport-Darr, Inc.
Mechanical Engineer
EE Systems Engineering, Inc.
Electrical Engineer
Mark Emmons Photography
Photography

Client
Jones Academy
(918) 297-2518

Grade span
1-12

Current building capacity
82

Current building area
17,227 square feet

Total project costs
$1.57 million

Cost per square foot
$91

Space per student
210 square feet

Cost per student
$19,160

Completion date
December 1994

Site plan

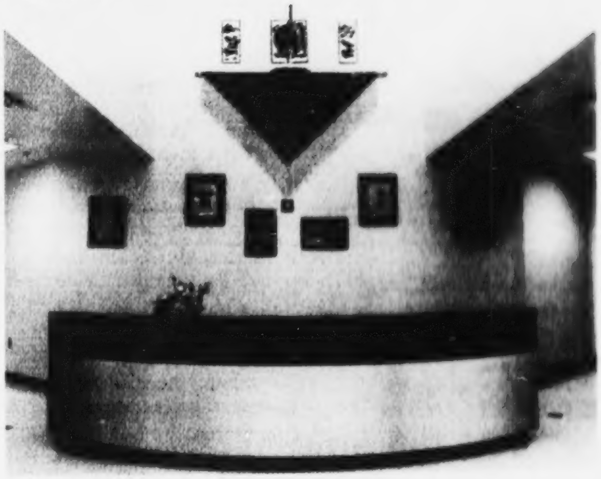
Jones Academy (a housing campus for Native American children in grades K through 12) faced serious problems with the dormitory facilities for their elementary age children. The existing building was overcrowded, structurally unsafe, and had several life-safety code violations. As well as providing design services, Holleyman Associates developed the program of requirements for this dormitory to house 80 children plus two sleeping rooms for handicapped children. Although this original program called for the housing of elementary age boys and girls (grades 1 to 6), during construction the academy requested the building be revised to house only girls—grades one to 12.

Due to site limitations and direct supervision needs, the plan naturally developed into an "L" configuration. This allowed for the creation of individual age wings separated by a centralized administration and support area. This "L" opens into a green area and the existing playground while also creating a barrier from the public areas of the campus.

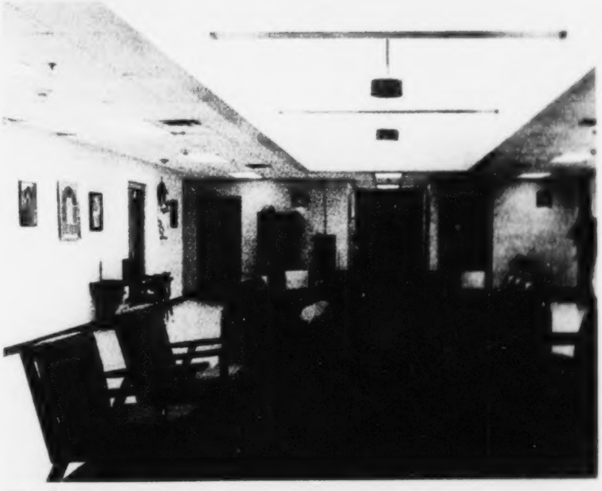
Suites were created by joining two, four-person sleeping rooms with a bathroom. This allows for more privacy, as well as creating personalized areas which the children are responsible for maintaining. Large open television/study rooms are located in each wing with glass block clerestories above to allow for natural light to enter these interior spaces.

The addition of this new centrally located dormitory has provided a source of pride for the Jones Academy campus and much-needed housing for the school's students. ■

Main entrance



Dorm reception



TV study room

K-12
Renovations/Additions

OAKFIELD-ALABAMA CENTRAL SCHOOL
OAKFIELD, NEW YORK
Habiterra Associates

Habiterra Associates
1279 North Main Street,
Box 609
Jamestown, NY 14702
John E. Shedd
(716) 664-4710

Design team
Paul Hedin, AIA
Architect
David Schoening
Project Coordinator
Phil Kennedy
Landscape Architect
Wilson, Klaes,
Brucker & Worden, P.C.
Mechanical/Electrical Engineers
Edward Hanson
Designer
Gordon Peterson
Specification Writer
Lindsey Shelley
Designer
Robert Heintz
Designer
Robert Nordin
CADD Manager
Gene Ingersoll
Construction Administrator
John E. Shedd
Color Selections

Client
Oakfield-Alabama Central
School
(716) 948-5211

Grade span
K-12

Current building capacity
1,275

Current building area
130,900 square feet

Building area before addition/renovation
101,500 square feet

Total project costs
$14 million

Space per student
103 square feet

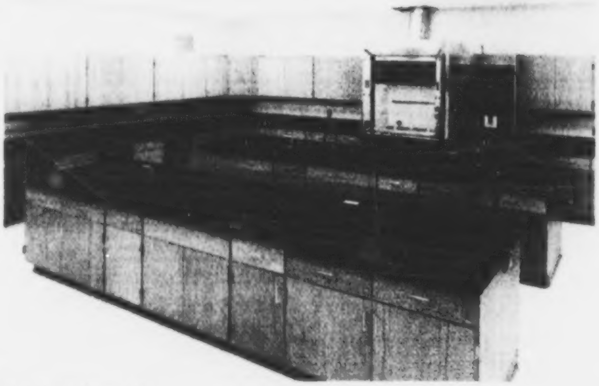
Completion date
October 1996

With the added enrollment and changing needs of the Oakfield-Alabama School District, major renovations and additions had to be planned and constructed to accommodate the students and staff. Classrooms were added to the two existing buildings at the campus. Both buildings were renovated to improve function, update technology, and address the accessibility needs of the increased student body. New technology classrooms, a library, music rooms, special education classrooms, home and careers work spaces, and business instruction classrooms were added to the existing building.

To meet the physical fitness education needs of the district, a new gymnasium was added, along with extensive new exterior track and field facilities, ball fields, and soccer fields. The superintendent and school board worked through many long hours with the architect to be certain that the planned construction would occur with a strong commitment to safety for the students and staff. The creation of a middle/high school wing became an objective. Aesthetic concerns were also addressed, and a passionate desire to match the existing buildings prevailed as the design theme. Working together, these goals were realized.

Now the Oakfield-Alabama school board and the community can be proud of their buildings and their historic step toward a brighter educational future for their students. ■

Library


Chemistry/physics lab

Site plan

OAKFIELD - ALABAMA
MIDDLE - HIGH SCHOOL
Exterior library

K-12
Renovations/Additions

PERKIOMEN SCHOOL
PENNSBURG, PENNSYLVANIA
H2L2 Architects/Planners

H2L2 Architects/Planners
714 Market Street, Suite 600
Philadelphia, PA 19106

Mykhaylo Kulynych, Partner
(215) 925-5300

Design team
Robert Breading
Partner-in-Charge

Mykhaylo Kulynych
Partner/Project Manager

Jerry Buccacio
Project Architect

Carolyn Simons
Interior Designer

Wick, Fisher, White
Mechanical/Electrical Engineers

A.W. Lookup
Structural Engineers

Pennoni Associates
Site/Civil Engineers

Client
Perkiomen School
(215) 679-9511

Grade span
5-12

Current building capacity
78 students/13 faculty apartments

Current building area
68,500 square feet

Building area before addition/renovation
55,500 square feet

Total project costs
$8 million

Cost per square foot
$117

Space per student
878 square feet

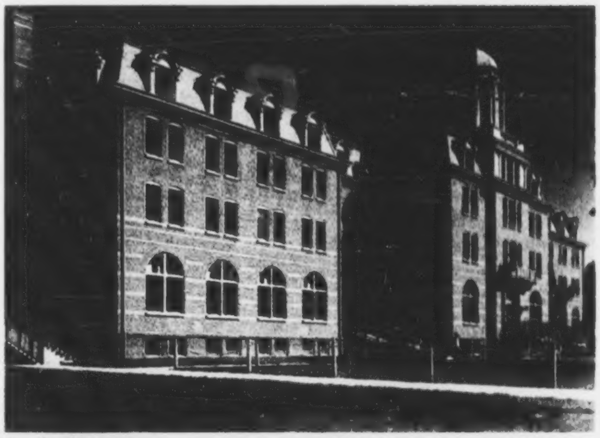
Cost per student
$103

Completion date
September 1995

Kriebel Hall, a five-story, 55,000-square-foot French Beaux Arts structure was engulfed by fire in April 1994. Built in two stages in 1875 and 1902, the building had housed administrative offices, classrooms, an assembly room, faculty apartments, and student dormitories. As the symbol of the school and the oldest structure on campus, Kriebel Hall was an integral part of the school's identity. Maintaining that identity meant saving, repairing, and reconstructing the building's exterior.

The conflagration ruined the interior and destroyed the mansard roof and a portion of the exterior wall. Approximately 75 percent of the existing masonry shell was salvaged and temporarily braced by a unique diagonal brace system. Exterior features, such as cornices, dormers, windows, and roof were replicated based on those of the original structure. The striking cupola, designed in 1902 but never built, was added to the reconstruction.

Using fast-track methods, the superstructure was designed in advance of the building systems and long-lead items such as structural steel were ordered early.


Completed restoration

Interior

The interior floors and walls were replaced with modern construction and the plans reconfigured to meet new program requirements.

An addition to the back of the building, housing a 286-seat auditorium, student residences, lounges, and classrooms, increased the square footage to 68,500. The critical 14-month construction schedule required close cooperation between the school, the architect, and the contractor. ■

Site plan

Restoration in progress

K-12
New construction

SAN CAYETANO ELEMENTARY, CALABASAS MIDDLE SCHOOL, AND RIO RICO HIGH SCHOOL RIO RICO, ARIZONA

The Orcutt/Winslow Partnership

The Orcutt/Winslow Partnership
1130 North Second Street
Phoenix, AZ 85004-1896

Carl Nelson
(602) 257-1764

Design team
Herman Orcutt
Partner-in-Charge

Chuck Hill
Team Leader

Carl Nelson
Project Architect - Middle and High School

Doug Theberge
Project Architect - Elementary School

Russ Sanders
Aline Funari
Assistant Team Members

Client
Santa Cruz Valley Unified
School District No. 35
(520) 281-8282

Grade span
K-12

Current building capacity
2,800

Current building area
254,728 square feet

Total project costs
$17.1 million

Cost per square foot
$67

Space per student
91 square feet

Cost per student
$6,125

Completion date
July 1995

In 1992, the Santa Cruz Valley Unified School District faced the challenge of an expanded student population. In order to provide services for K-12 students on a site that had previously served K-8 students only, the goal was to improve existing structures and to build a new middle school and high school. This presented two key challenges: the site was in a federal floodway and the budget was modest.

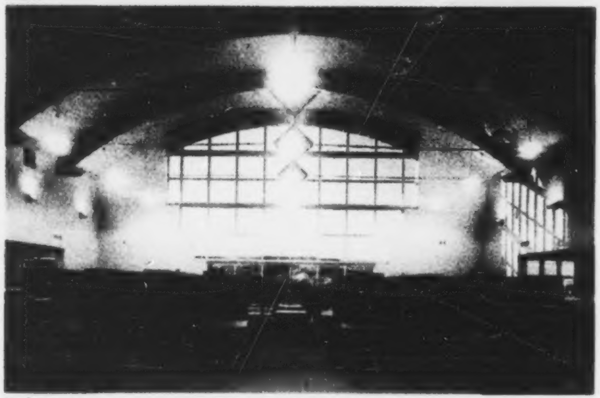
Plaza

Elementary/story area

The slope of the 140-acre site provided a solution. As a result, the existing elementary and middle school structures became K-5 facilities. The new middle school and high school were built at the top of the hill, moving sixth through eighth-graders to a new facility and giving high school students their first local facility. To protect the campus from flooding, the school on the site's lower level was enclosed with a flood-control berm and the new schools were constructed on the crest of the hill.

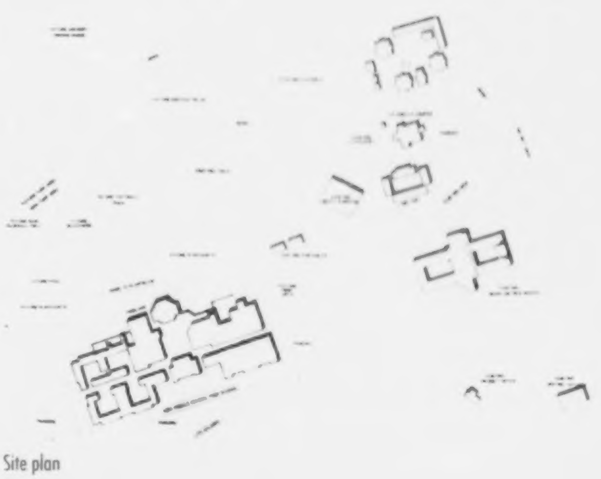
In response to the budgetary limitations, the schools share facilities. A core zone was established between the schools to house the administration, media center, cafetorium, athletics, and band and choral areas.

The campus also incorporates the area's cultural influences. A village concept was developed to create updated, stylistic elements of both the Presidio and the Spanish colonial missions.



Media center

The design team solved the floodway challenge, the campus blends well with its surroundings, and the team stayed within the project's economic parameters. ■



Site plan

K-12
New Construction

RARITAN VALLEY ACADEMY
PISCATAWAY, NEW JERSEY

Shive/Spinelli/Perantoni and Associates Architects + Planners

Shive/Spinelli/Perantoni and Associates Architects + Planners
148 West End Avenue
Somerville, NJ 08876

Peter C. Campisano, AIA
(908) 725-7800

Design team
Richard B. Shive, AIA
Partner-in-Charge

Jeanne K. Perantoni, AIA
Project Senior Associate

Peter C. Campisano, AIA
Project Architect

Client
Middlesex County Special
Educational Services
Commission
(908) 777-9848

Grade span
Special education, ages 6-21

Current building capacity
200

Current building area
54,210 square feet

Building area before addition/renovation
N/A

Total project costs
$8.23 million

Cost per square foot
$122

Space per student
220 square feet

Cost per student
$39,145

Completion date
September 1996

Exterior

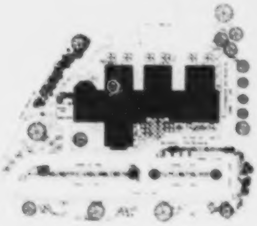
The Raritan Valley Academy was dedicated on September 6, 1996. The building is the product of a seven-year effort on the part of the Special Educational Services Commission for the County of Middlesex, N.J. The 54,200-square-foot steel frame, rose brick, and block structure houses approximately 200 emotionally disturbed and neurologically impaired children, ages 6-21.

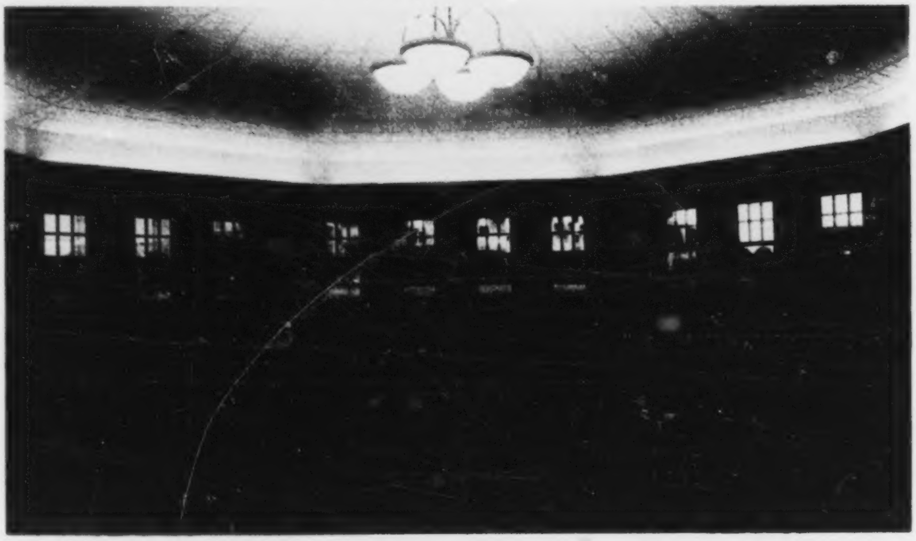
From a program perspective, the commission sought a school design that would satisfy the special needs of a wide range of disabled students, yet maintain a high level of observation and security without the building taking on an institutional character. The result is a "House Within a House" design that provides a sensitive and responsible learning atmosphere for the students while supporting the many special teaching and supervisory functions required.

The plan provides a central passageway or Main Street from which all areas of the building are accessed. This layout enables the principal to walk out of his or her office and observe a majority of the school at any one time. The three classroom wings, or houses, are designed to educate children in the following age groups: 6-11, 7-15, and 16-21. A sense of security, identity, and community is created within each age-group wing.

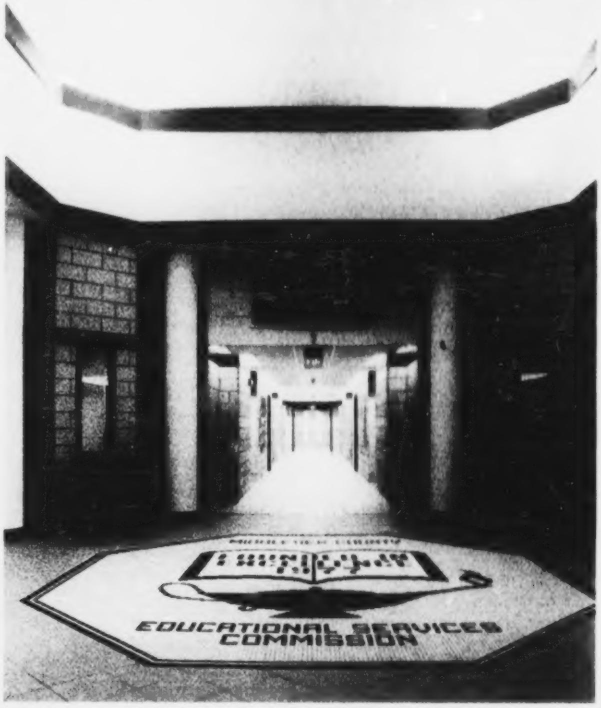
In addition to the general classroom areas, the building includes a wood shop, consumer education lab, multi-purpose room, and full working kitchen where children learn by actually preparing daily meals for the entire school population.

The building is also the new home for the Middlesex County Educational Services Commission. This commission, founded in 1977, provides special education services for the county's children.


Site plan


Interior

Corridor



Entrance

Every space throughout the building—from the 18 general classrooms and the individual instruction rooms to counselors' offices—contains the latest advances in technology. The building has a fiber-optic backbone that accommodates its current networked system as well as providing plenty of expansion capability. This state-of-the-art infrastructure is well equipped to satisfy the school's educational program needs well into the 21st century.

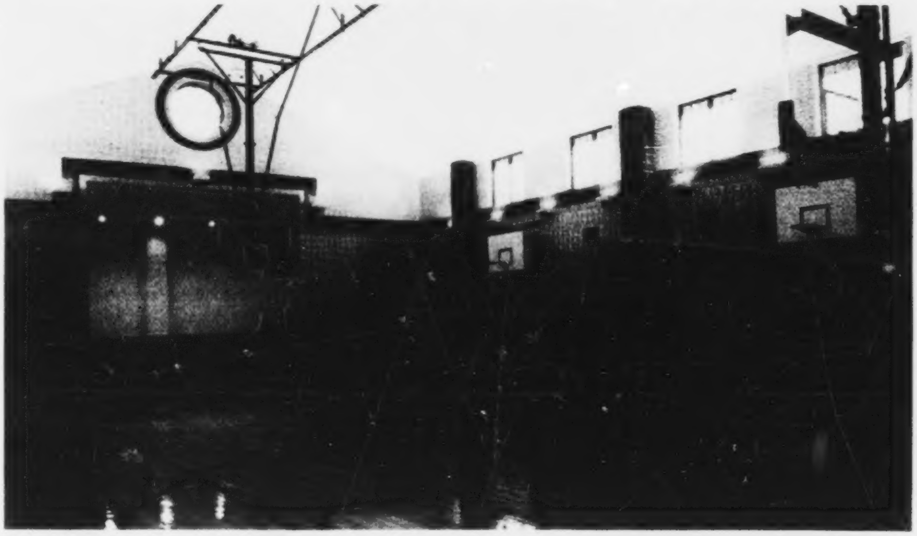
In response to the student's susceptibility to excess visual stimuli and their lower immune systems, a special lighting and air conditioning design was incorporated into the building. Indirect and natural lighting are used wherever possible, in conjunction with vaulted ceilings and varying ceiling heights. The heating, cooling, electrical, and fire systems are networked throughout a mezzanine level, fully hidden beneath the pitched roof structure.

The facade expresses the "House Within a House" design concept and makes visual references to residential forms with which the children are familiar. This includes broad overhanging eaves, which provide a sense of shelter, as well as natural brick and stone work.

Interior finishes include carpeting in all classrooms and offices, as well as nonslip ceramic tile and natural stone flooring in major special activity spaces and corridors. The multipurpose room flooring is natural wood. The walls throughout the building interior are prefaced masonry that provide a durable and attractive surface feature.

The project was completed on time and on budget, to the delight of the Middlesex County Freeholders and Improvement Authority, which funded the project. Through the diligence of the architectural team and construction management staff, total change orders for the project amounted to less than 0.71 percent of the total construction cost. This careful management freed contingency money and allowed the commission to make additional improvements, such as adding a new parking lot, upgrading interior finishes, and purchasing additional equipment for students.

The largest measure of the building's success story comes from a long-range vision by the building's educators and facility planners, who translated their shared vision and common goals to provide an environment where quality education is provided for all of the county's children. ■



Gymnasium

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BOARD OF EDUCATION AND EDUCATION CENTER OLATHE, KANSAS

The Hollis & Miller Group, Inc.

The Hollis & Miller Group, Inc.
5000 West 95th Street,
Suite 100
Prairie Village, KS 66207

Gail Ensz
(913) 642-6111

Design team
Thomas E. Davis, AIA
Principal-in-Charge

John W. Southard, AIA
Project Manager

Louis L. Shroba, RA
Project Architect

Pegge Price Hudson, IIDA
Stacie Twedt
Interior Designers

Richard Hardt
Educational Technology Planner

Client
Unified School District #233
(913) 780-7000

Current building area
43,400 square feet

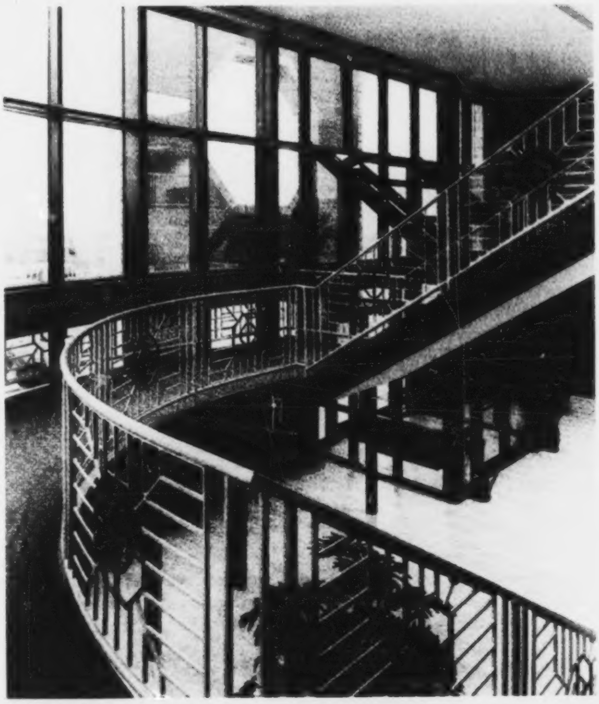
Total project costs
$3.79 million

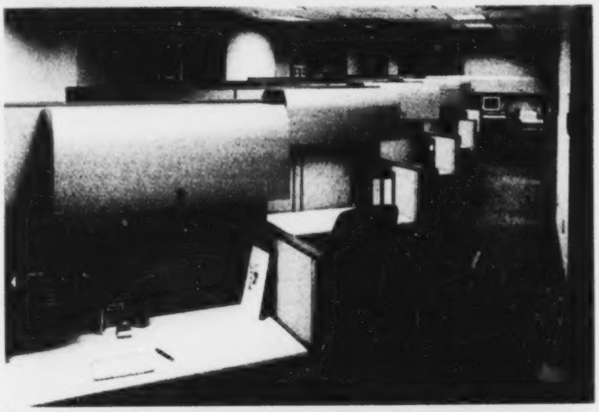
Cost per square foot
$87

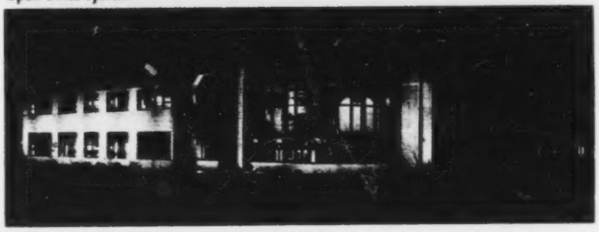
Completion date
August 1996

This facility is designed to convey the "professional educators" archetype the Olathe, Kansas, U.S.D. 233 has established, mindful of the community's desire for quality education. To accomplish this, the district's new headquarters is designed as a simple curtain wall structure with unique elements that express the solid values the district maintains. A grand atrium entrance, sweeping stair, dramatic colors, and circular corridors complement a brick exterior that creates an atmosphere where day-to-day business can be conducted quickly and professionally. Those elements as well as the layout of the building provide an environment that can address the needs of administrators, staff members, and patrons in an accommodating and effective manner.

The facility includes a number of state-of-the-art technologies. The Astra Phoenix Group, Inc., technology consultants to the district, designed an ISDN telephone system which utilizes Plexar switching from Southwestern Bell. The use of ISDN allows individual phones to share the same ISDN line, thus reducing the number of lines necessary to serve the building. The building data network is a switched Ethernet with fiber optic to the desktop. The board meeting room features a multimedia presentation system. Rear screen video projection for the audience and in-desk monitors for the board members and administrators allow the use of computer display, visual presenter (overhead projector), video tape, cable vision, etc. ■


Atrium entrance


Open office system


Exterior

Site plan

BUSINESS & TECHNOLOGY CENTER KANSAS CITY, MISSOURI

Frangkiser & Hutchens, Inc.

Frangkiser & Hutchens, Inc.
4306 Doctor Greaves Road
Grandview, MO 64030

Larry W. Diehl
(816) 763-9600

Design team
Larry W. Diehl
Principal

Douglas A. Boyd
Project Architect

Greg Jensen
Project Manager

Kim Sharkey
Interior Designer

Client
Metropolitan Community
Colleges
(816) 759-1101

Grade span
Jr. College Level to Professional

Current building area
40,000 square feet

Total project costs
$1.7 million

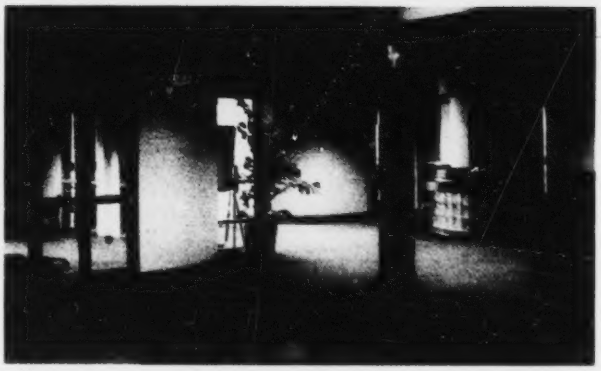
Cost per square foot
$42

Completion date
Phase 1: October 1995
Phase 2: October 1996

The Metropolitan Community Colleges (MCC) wanted to provide a technology center in which to train professionals in a variety of technical skills. The new center should be able to accommodate a variety of training settings and possess a professional, contemporary character that would be attractive to their clients. Through the design and retrofit of an existing building, these goals and others were met with the new Business and Technology Center (BTC).

The Business and Technology Center is being completed in two phases. The first phase is approximately 40,000 square feet with a total cost of $1.7 million and has been completed. The second phase is under way and is also approximately 40,000 square feet with a total cost of $1.7 million.

Classrooms, conference rooms, computer laboratories, and high-powered technical machinery and equipment such as tooling machines are provided at the BTC. MCC was not only concerned about providing physical space for their programs; they also designed a facility that would reflect their intent and purpose within a professional and attractive environment. The architects' challenge was to provide for the different types of learning spaces required by the BTC, reflect the aesthetic desired, and phase the project in a workable manner. "Smart Solutions" is the Business Technology Center's learning philosophy, and the architects' intent was to provide "smart" designs.


Lobby

We recognized the wide range of clientele that the Business and Technology Center would market to, from the technical guru who would train with simulators and hydraulic pneumonic, to the business professionals taking desktop computer classes. Taking into consideration characteristics such as clarity of function, form and material of a technical training environment, and of the budget available, we decided that exposing the existing wood structure of the original building and blending with the new construction would provide the aesthetic the client desired to express in their facility: a professional, clear, and technical environment. We found that exposing the wood structure throughout the building not only softens the harshness that can be found in industrial/technical building types, but it also provides a material continuity and character that is unique to the center. Other characteristics provided in the center are rounded corners in entryways and corridors, and muted finish colors which assist in humanizing the "technical-ness" of the interior. Natural lighting was provided with the use of glass block in exterior walls.

First floor plan

Clearly, the direction of our interior design was to fuse the high-tech look of steel and plastic laminates with the warmth of the existing heavy timber structure. However, years of abandonment and roof neglect have discolored and stained the very feature worth salvaging. It became somewhat of a challenge to design around "problem" areas combining concealed ceilings with exposed ceilings. This was further complicated by the need to meet current code requirements in dealing with the very nature of exposed wood in general.

Phasing the construction project also contributed to the necessity for careful planning. The first floor level, finished under phase one, is continuing to be used as a learning environment among the construction activity on the second floor level. This has been difficult for construction to take place at an appropriate time because of evening and weekend classes also being offered. ■

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OTHER
New construction

CISCO SPECTATOR GYMNASIUM
CISCO, TEXAS
Huckabee & Associates, Inc.

Huckabee & Associates, Inc.
4200 S. Hulen, Suite 605
Fort Worth, TX 76109

Christopher M. Huckabee, AIA
(800) 687-1229

Design team
Tommie J. Huckabee, AIA
Principal-in-Charge

Christopher M. Huckabee, AIA
Design Architect

Michael D. King, AIA
Design Architect

Paul Svacek
Project Director

H. Ray Stringer
George F. Cox
Ronald Cannon
Kelly Wood

Client
Cisco Independent School District
(817) 442-3056

Grade span
9-12

Current building capacity
1,000

Current building area
22,679 square feet

Total project costs
$1.48 million

Cost per square foot
$65

Space per student
N/A

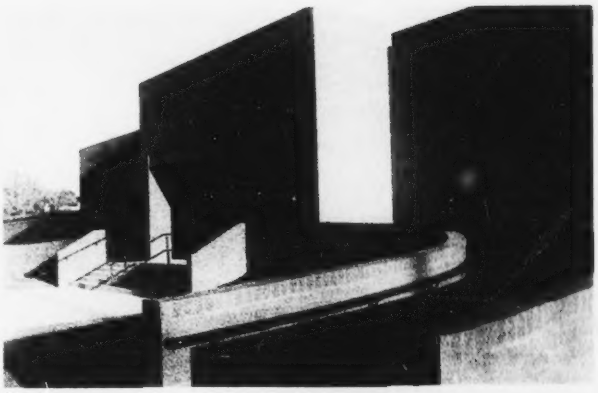
Cost per student
N/A

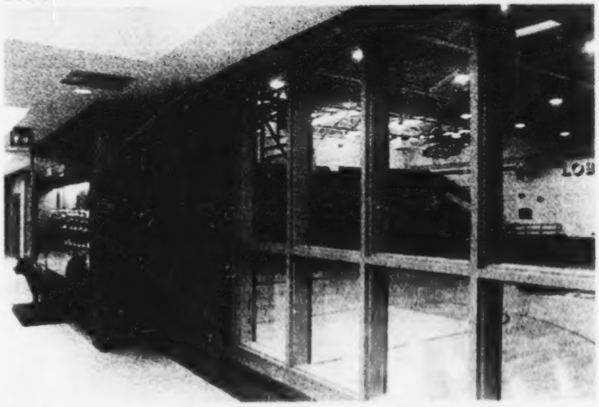
Completion date
February 1996

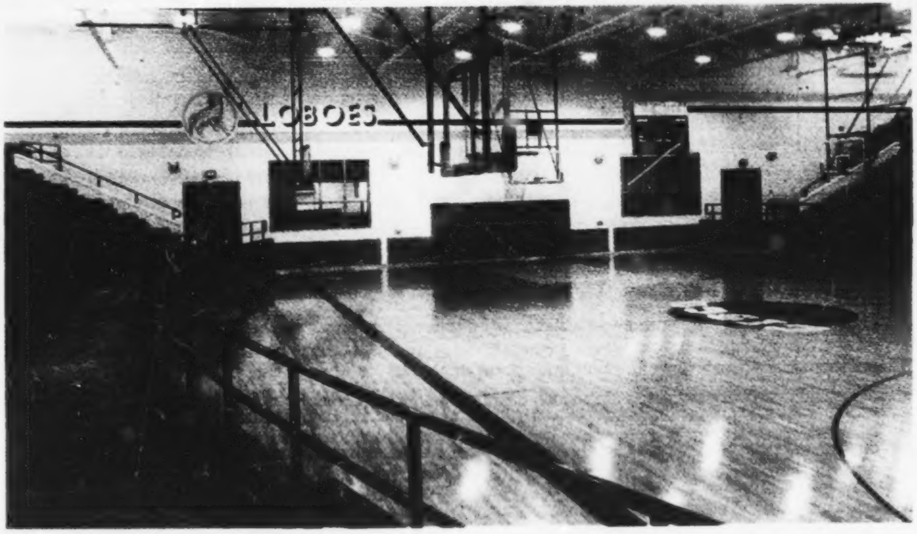
Cisco Independent School District sought the assistance of Huckabee & Associates to develop a new sports center for the community and a year-round training facility. The growth of the district had made it necessary to construct a new facility.

Proximity to the existing junior high school and high school was vital to the functionality of the new facility. With a limited site, the new spectator gymnasium was placed adjoining the existing gymnasium. A new entrance was developed with a large foyer for community gatherings and windows looking onto the playing court, thus allowing for the viewing of games from the commons area.

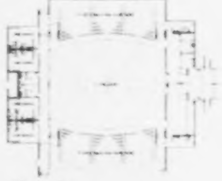
Fixed seats were developed with a radius, allowing for superior viewing of the court from all seats. A weight room was developed below the bleachers. Dressing facilities were provided for visitors and home teams, along with training and laundry facilities. ■


Exterior

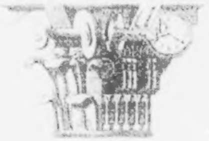

Interior



Gymnasium


Floor plan

OTHER
Renovations/Additions



PRAIRIE STATE COLLEGE
CHICAGO HEIGHTS, ILLINOIS
Legat Architects, Inc.

Legat Architects, Inc.
2021 Spring Road, Suite 150
Oak Brook, IL 60521

Jeffrey F. Sronkoski, AIA
(630) 990-3535

Design team
Jeffrey F. Sronkoski, AIA
Principal-in-Charge

Paul Pessetti, AIA
Project Manager/Designer

Jay Johnson
Project Architect/Construction Administrator

Larson Engineering of Illinois
Structural Engineers

KC+M Engineers & Associates
Consulting Engineers

Stan Roller, Inc.
Acoustical Consultant

Bittner & Detella, Inc.
Renovation Architect

Client
Prairie State College/Capital Development Board
(708) 709-3638

Grade span
Community College

Current building capacity
5,000

Current building area
346,828 square feet

Building area before addition/renovation
312,828 square feet

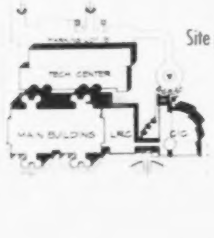
Total project costs
$6.66 million

Cost per square foot
$115

Space per student
69 square feet

Cost per student
$1,332

Completion date
January 1996

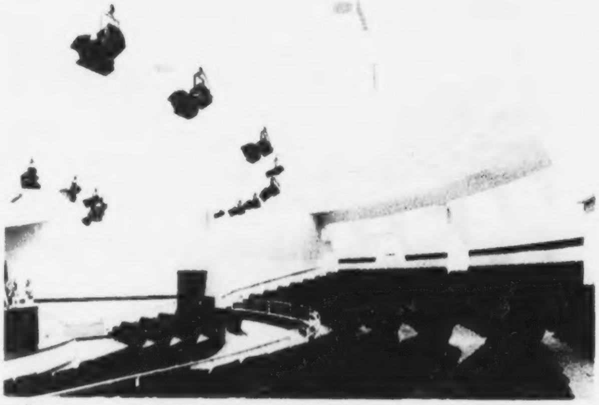


Site plan

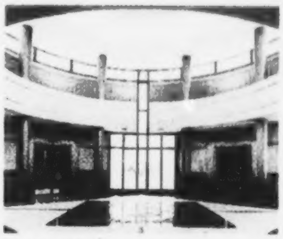
This 34,000-square-foot addition to Prairie State College comprises two main components: a Learning Resources Center (LRC) and a Community Instructional Center (CIC).

The design challenge of the LRC component was to reorganize the existing library into a state-of-the-art center for learning, which would provide opportunities for students and the community. The existing library was expanded to provide additional space for stacks, and to provide new program spaces such as a Career and Transfer Center, a bibliographic instructional classroom, and multimedia preview rooms. Multiple entry points were consolidated to provide one point of entry from the student commons, resulting in a visual and physical connection to the heart of the college.

The Community Instructional Center component was based upon the need to increase educational opportunities and services for the students and community. While the LRC is primarily student-oriented, the CIC focuses on community involvement. The CIC, therefore, had to appear as a separate structure, designed to provide a visual connection to the community, yet remain physically and functionally connected to the main college building. The primary element of the CIC is the 500-seat teaching and learning auditorium, equipped with the latest technology and state-of-the-art acoustic design, which accommodates uses ranging from teleconferencing to small musical performances. Flanking the lecture hall is a series of multiuse classrooms equipped with audio-visual capabilities.



Auditorium



Interior rotunda

The architectural character of the LRC/CIC addition, through the use of similar materials and repetitive architectural cues, reaches out to the north and illustrates a continuity of structure. On the exterior, the roof form of the auditorium is broken into three segments that draw the eye upward, providing a visual transition to the existing adjacent four-story structure and serving to create a more human scale to the campus from the north. The adjacent rotunda form references the main building circulation towers and reaches upward, appearing as a beacon to the community. Internally, the rotunda marks the main circulation paths of the CIC and is accentuated with the college seal etched into the floor. ■

Exterior

OTHER
New construction

ULSTER COUNTY COMMUNITY COLLEGE
STONE RIDGE, NEW YORK
Kaeyer, Garment & Davidson Architects PC

Kaeyer, Garment & Davidson Architects PC
285 Main Street
Mount Kisco, NY 10549-3024

Russell A. Davidson, AIA
(914) 666-5900

Design team

Richard E. Kaeyer, FAIA
Principal-in-Charge

Russell A. Davidson, AIA
Project Architect

Viktor K. Solarik, AIA
P.J. Acampora
Jason Harper

Client
Ulster County Community College
(914) 687-5000

Current building area
74,000 square feet

Total project costs
$9.85 million

Cost per square foot
$127

Completion date
1992

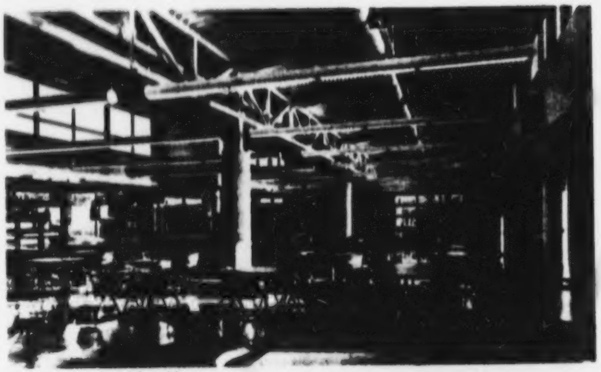
This project encompassed the updating of Ulster County Community College's master plan that, upon revision, called for the design of four new building additions totaling 58,000 gross square feet and the redesign and renovation of 16,000 gross square feet in existing buildings.

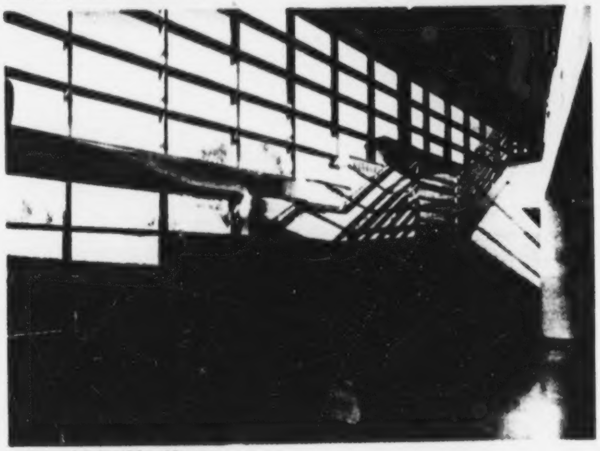
The largest new addition, the Student Life Center, contains a student cafeteria and kitchen, a bookstore, studios, and photographic darkrooms, plus a new boiler room that serves all new and renovated spaces. New clerestory windows in the cafeteria provide light and views to two adjacent mountain ranges—and have turned it into the focal point of the campus.

The new 22,000-square-foot laboratory and classroom addition now links two buildings and contains a lounge, nursing offices and laboratories, an environmental quality laboratory, chemistry laboratories, and general classrooms.

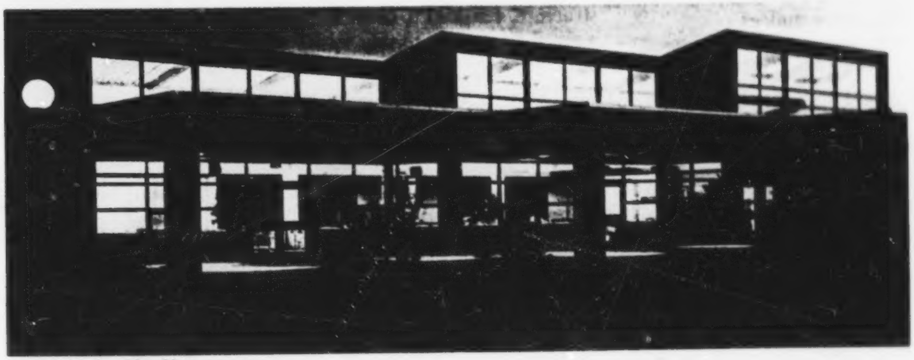
An expanded library also connects two structures and has become the Learning Resources Center. It contains a circulation desk, reading and study areas, microcomputer classrooms and tutoring sections, audio-visual carrels, and faculty and staff offices.

The introduction of three new elevators provides handicapped accessibility to four existing buildings and the new additions. New mechanical systems are more efficient than the old all-electric heating system. ■


Cafeteria/student life addition


Stairway/student life addition

Site plan


Exterior/student life addition

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A SCHOOL LEADER'S GUIDE TO ARCHITECTURAL SERVICES / 1998

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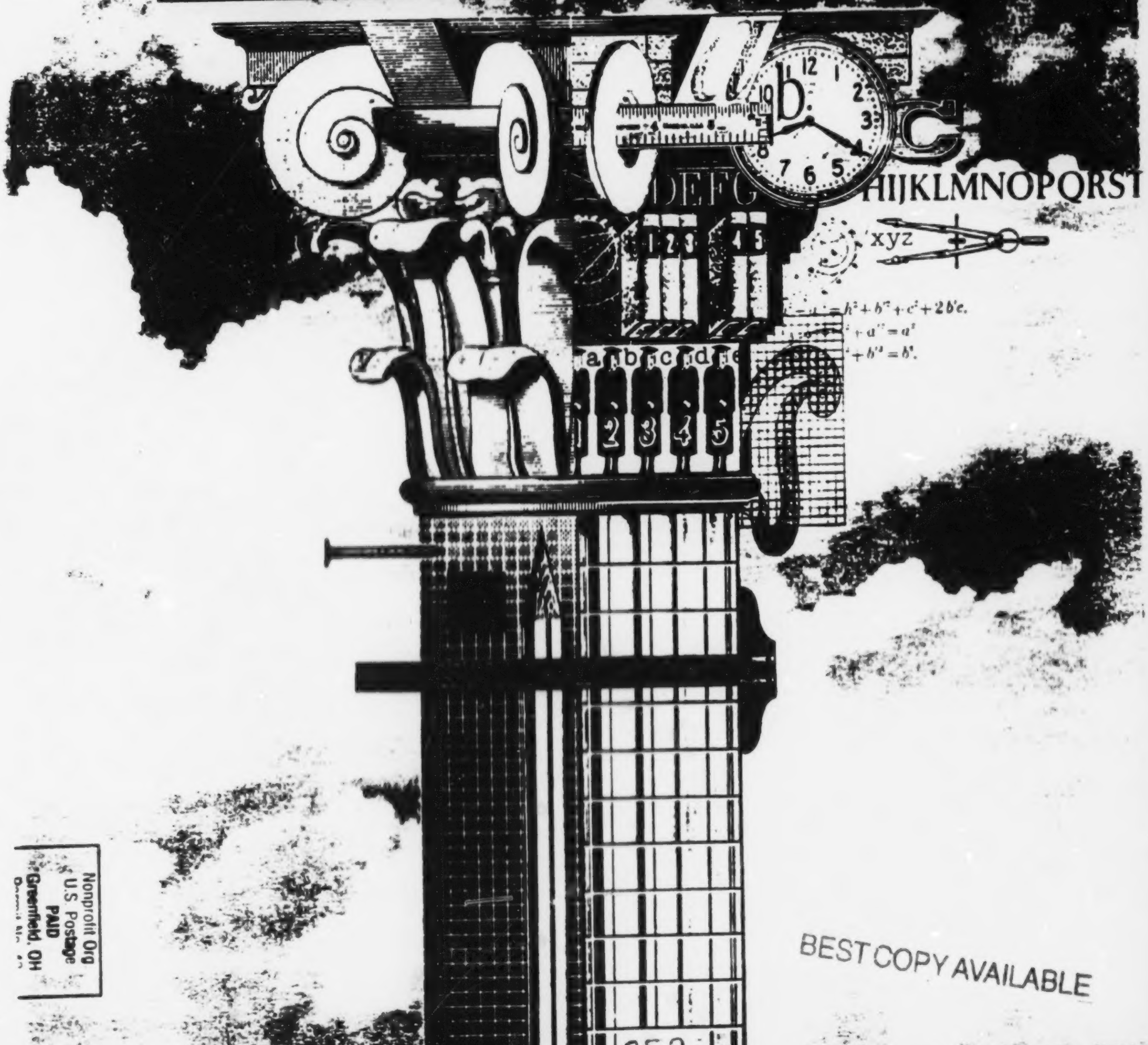
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LEARNING BY DESIGN

A SCHOOL LEADER'S GUIDE TO ARCHITECTURAL SERVICES 1998

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A Place to Learn

Modern schools, better learning. With those words, the American Federation of Teachers and the National Education Association (NEA) launched a joint campaign in January calling for a $30 billion, 10-year effort to help states and localities modernize America's public schools. And the public supports the idea. In polls conducted for the unions, 74 percent of voters back the proposal, and 70 percent believe the federal government should provide at least some funding for school modernization and renovation.

Just a week later, in his State of the Union address, President Clinton outlined his own plan to help finance some $20 billion in public school modernization, giving students access to educational technology and alleviating overcrowding.

It's an idea whose time has come. For, as NEA President Bob Chase has said, "Modern schools are basic for learning. Unless we take steps now to modernize school facilities, classes will become more crowded, technology more outdated, and students less prepared to meet the challenges of the future."

Across the nation, local school districts are meeting the challenge, renovating and retrofitting older schools and building new ones—not just to house America's burgeoning student population, but to provide exciting and effective learning environments that reflect what we know about what works in teaching and learning.

On the pages that follow you'll find impressive examples of the best in school design. These projects were submitted to our panel of distinguished architects and facilities planners. The review panel selected **Pathfinder Elementary School** in Fremont, Mich., as the 1998 Grand Prize winner. Designed by Kingscott Associates, this facility is described in detail on pages 8-9.

The reviewers also singled out seven Citation Winners for praise:

■ **Mary C. Burke Elementary School Complex**, Chelsea, Mass. HMFH Architects, Inc., page 30

■ **Juan Rodriguez Cabrillo High School/Phase I**, Long Beach, Calif. Thomas Blurock Architects, Inc., page 125

■ **Albert Einstein High School**, Kensington, Md. Grimm & Parker Architects, page 128

■ **Gretchko Elementary School**, West Bloomfield, Mich. TMP Associates, Inc., page 41

■ **Kentlake High School**, Kent, Wash. Burr Lawrence Rising + Bates Architects, P.S., page 136

■ **Skyview High School**, Vancouver, Wash. LSW Architects, P.C., page 142

■ **Thousand Oaks Elementary School**, Berkeley, Calif. Muller & Caulfield Architects, page 76

You're sure to find many promising ideas among these projects. ■

Anne L. Bryant
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From the Reviewers

Trends in School Design

"Today's schools are being asked to do more than ever." What educator hasn't heard—or made—that observation? Academic standards are being strengthened, teaching styles are changing, and the school itself is becoming a dynamic center of community life.

As the concept of education changes, so must the places where children are educated. Long rows of desks, cavernous auditoriums, intimidating school offices, and sterile corridors are giving way to vibrant spaces that reflect a new sense of what schools can accomplish.

The schools featured in this year's edition of *Learning By Design* represent some of the most innovative ideas in school architecture, trends inspired by educators who demand more from their schools.

"We seek a balance between good educational concepts and a good architectural response," says *Learning By Design* reviewer Richard G. Poole, a partner with Shriver and Holland Associates of Norfolk, Va.

It's not an easy task. The design innovations parents and educators want—more technology, spaces for student-centered projects, and facilities, such as auditoriums and health centers, that serve both students and the community—consume space and cost money.

More space for students

"It takes more space today to educate fewer kids than it did 10 or 15 years ago," says *Learning By Design* reviewer C. William Day of KBD Planning Group, Inc., in Bloomington, Ind. "Why? Two reasons. Because every time you put a computer in a classroom, it's like adding another student. Second, and more important, teaching and learning styles are changing. Students and teachers want to work in small groups. No more lines in a row."

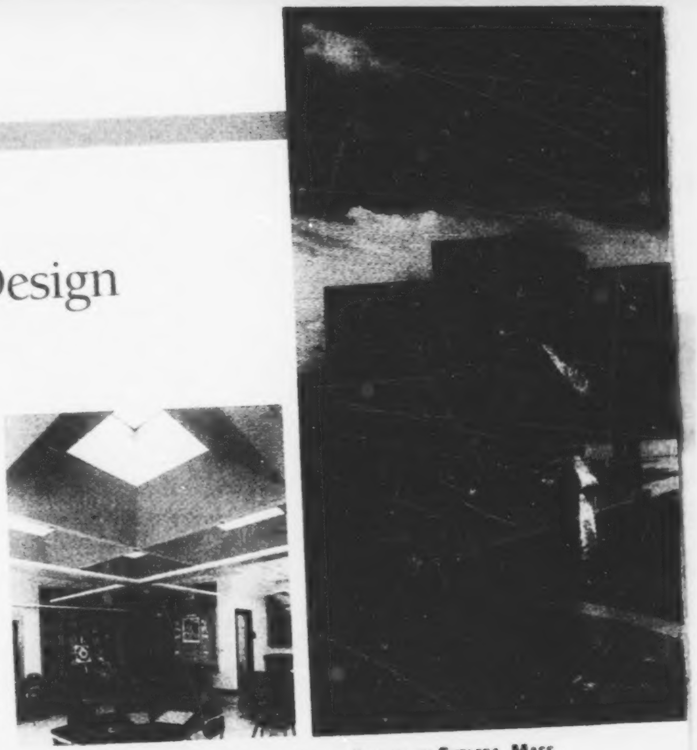
That means more computers in the classroom and well-planned spaces with round tables to accommodate group projects.

In addition to these space challenges, many schools simply need to make room for more kids. In 1996, an unprecedented 51.7 million students were enrolled in public and private schools. Over the next decade, high school enrollment is expected to grow 17 percent a year, Day says.

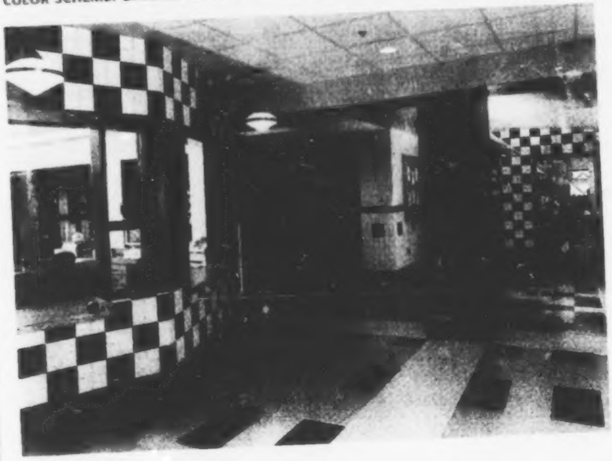
To accommodate all these students and still offer a small-school experience, many districts are creating "schools-within-schools." One of this year's designs, Mary C. Burke Elementary School, in Chelsea, Mass., enrolls 2,200 students but is really four schools in one. Each three-story program has its own public entrance and is identified by its own scheme of colors and geometric patterns, which are reflected in the building's interior and exterior details. Pairs of schools share a cafeteria and gymnasium, as well as health and music suites and a special education classroom. All four schools share the third-floor library.

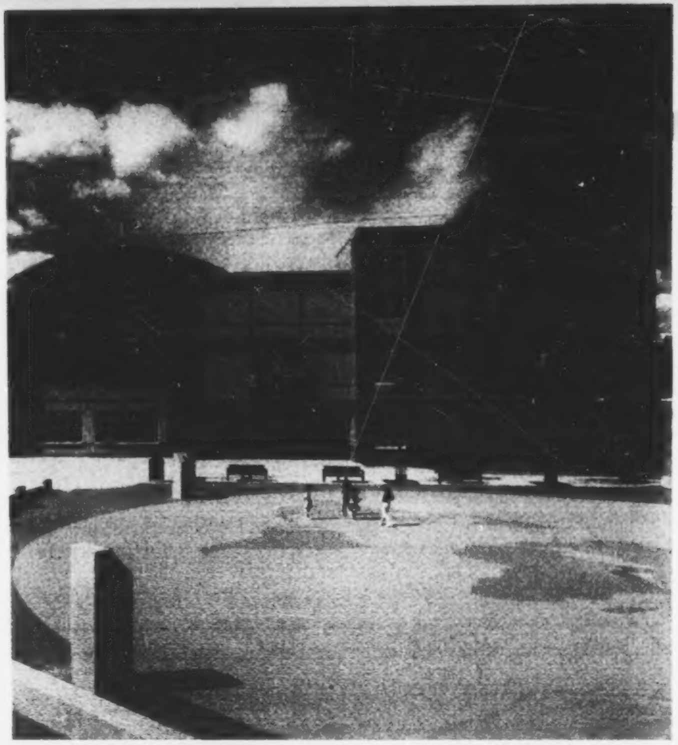
A similar concept is used at Skyview High School, in Vancouver, Wash. Built in three concentric circles, Skyview has 2,000 students in grades nine through 12. Along the outer circle are six academic houses—three per floor—that function as small communities. The middle circle includes what the designers, LSW Architects, call "student enterprise zones" and provides space for hands-on learning. The inner circle, or "commons," is used for large groups.

THE REVIEW PANEL FOR THIS YEAR'S PROGRAM INCLUDED, LEFT TO RIGHT, **JO ANNE MURRAY,** PRESIDENT, MURRAY & ASSOCIATES ARCHITECTS, GLEN ECHO, MD.; **RICHARD G. POOLE,** PARTNER, SHRIVER AND HOLLAND ASSOCIATES, NORFOLK, VA.; AND **C. WILLIAM DAY,** SENIOR ANALYST, KBD PLANNING GROUP, INC., BLOOMINGTON, IND.



SCHOOLS LIKE MARY C. BURKE ELEMENTARY SCHOOL IN CHELSEA, MASS., GIVE STUDENTS A SMALL-SCHOOL LEARNING EXPERIENCE IN A LARGE FACILITY BY CREATING 'SCHOOLS-WITHIN-SCHOOLS,' EACH WITH ITS OWN ENTRANCE AND COLOR SCHEME. SHARED SPACE INCLUDES THE GYMNASIUM.



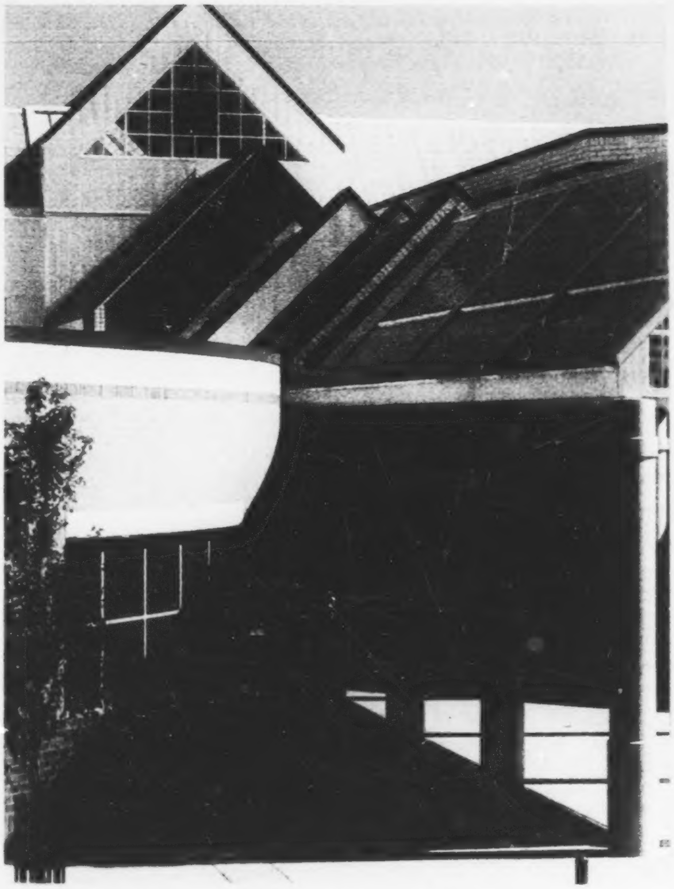


Open to the community

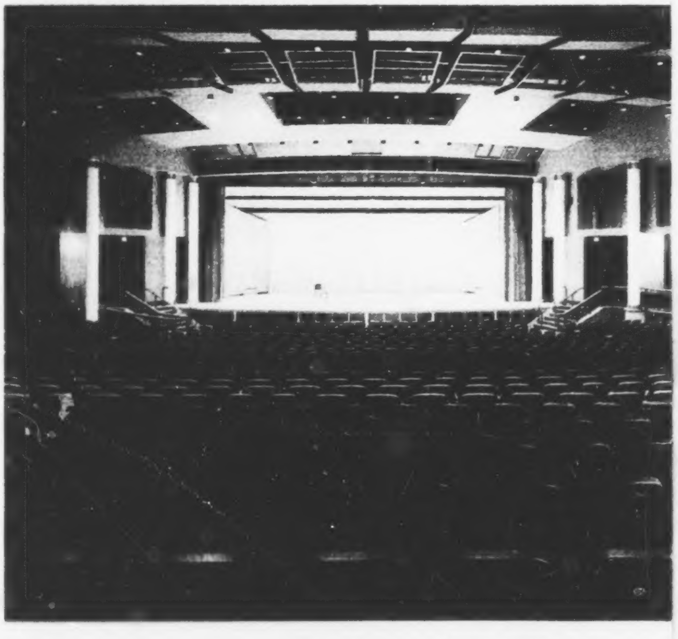
Another trend in today's school design is increased opportunities for community use. For years, schools have been calling for more involvement from parents, business people, and other members of the community; now many schools are creating volunteer rooms or parent rooms to make visitors feel welcome.

Schools are also opening their auditoriums, stadiums, and fitness centers to the public. This practice helps rally community support and makes better use of these facilities during off hours.

Advances in computer technology have generally resulted in smaller school libraries and media centers, as online resources replace supplemental reading materials. Yet some high schools are



THE ENTRANCE TO SKYVIEW HIGH SCHOOL IN VANCOUVER, WASH. (ABOVE), WELCOMES STUDENTS AND COMMUNITY MEMBERS ALIKE. THE SCHOOL'S AUDITORIUM (BELOW) IS ALSO OPEN FOR COMMUNITY USE.



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A computer lab and commons area at Skyview High School echo the school's circular design.

expanding their libraries by entering into agreements with the community. Local residents get access to the school's resource materials, and the town or county avoids the cost of building a new library. In turn, the school can invest in a larger facility and forge new community ties.

Opening school facilities to the community presents challenges for architects, however. It means designing for multiple uses, constructing technologically sophisticated facilities (paying more attention to auditorium acoustics, for example), and ensuring student security.

"It's just more complex," Poole says. "School science labs are becoming more like chemistry buildings, and school auditoriums are becoming more like little theaters."

Many school health centers are also being upgraded, particularly those in urban areas. Residents of poorer neighborhoods may not visit government-run health clinics, says *Learning By Design* reviewer Jo Anne Murray of Murray & Associates Architects, in Glen Echo, Md. "But they will go to their children's school."

The schools represented in this year's *Learning By Design* show the importance placed on bringing the community to the school and on creating a more dynamic learning environment within the school. Today's students want to be connected to their communities. They want "hands-on" learning and won't settle for what Day calls the "chalk and talk" approaches of the past.

"Kids today won't tolerate that," Day says. "They want to be involved." ■

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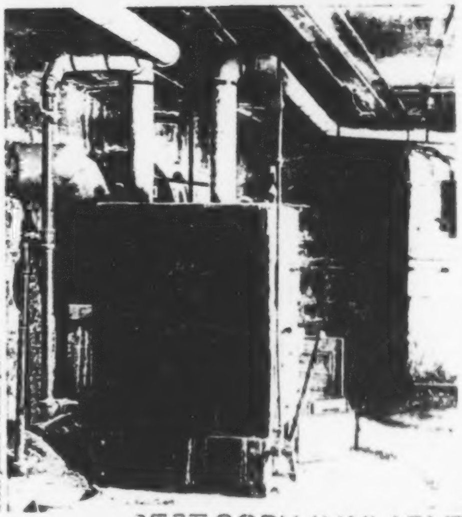

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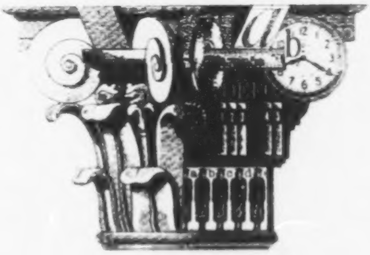

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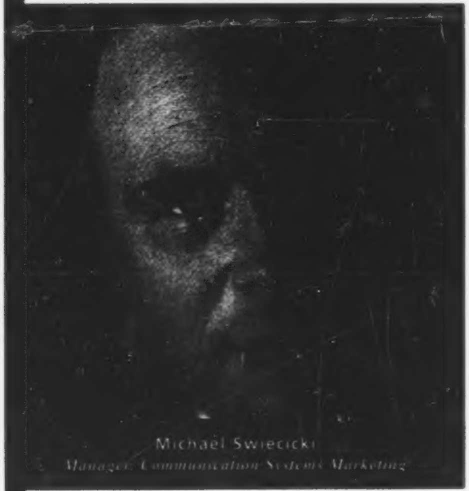

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Grand Prize Winner Profile

1998 GRAND PRIZE WINNER LEARNING BY DESIGN

Pathfinder Elementary School

A supportive environment for young children

After the voters of Fremont, Mich., turned down two bond issues for new school construction, Fremont Public Schools Superintendent Robert DeVries decided to try something different. He called on Robert McGraw of Kingscott Associates to come up with a construction plan that would be palatable to the small, rural community whose vegetable and fruit farms supply the nearby Gerber baby food plant. But the plan also had to reflect the district's educational program.

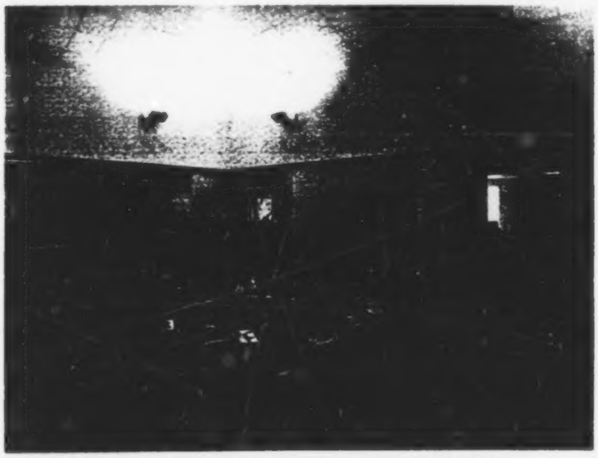
McGraw and his design team put together a district-wide construction plan that earned the community's thumbs-up and approval of a $20 million bond issue. Pathfinder Elementary School—a 600-student, first-through-third-grade primary school—is the jewel in the crown of Fremont's new construction. The school is divided into four sections, or pods, with a commons area and administrative offices in the middle. Each pod—or "school-within-a-school"—has its own entrance, common space, planning room, kitchenette, computer labs, special education rooms, counseling office, and storage.

Media center with access to playground and outdoor stage area.

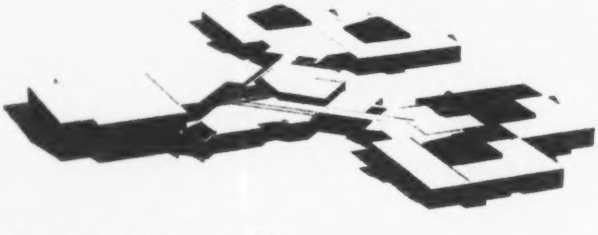
When McGraw and his team interviewed the Fremont primary teachers, they discovered the teachers were using the techniques of team-teaching and looping, which involves multiage groupings of students. "They really wanted to create a building that worked for teaming and looping," says McGraw.

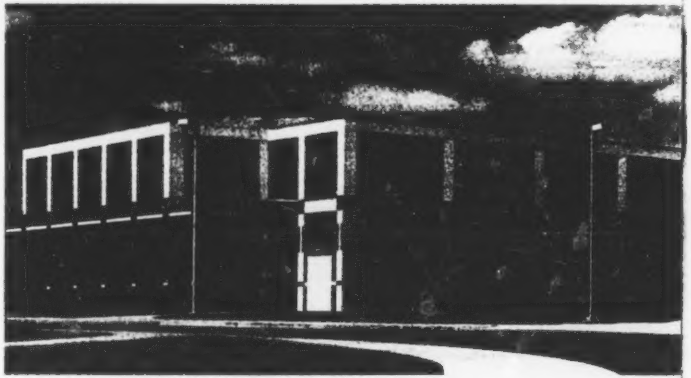
The six classrooms in each pod open to a common space in the middle. In a traditional school design, that common space would be empty corridor, mostly unusable space. But with the classrooms surrounding it, the open area can now be used for group activities. "We creatively used the corridor space," says McGraw. "It didn't cost any more because it was corridor space."

With 600 students in the building, each cluster is made up of 150 students in first, second, and third grade. The pods are identified by colors: red, purple, blue, and green. The children stay in the same pod all three years. Each pair of classrooms is divided by a portable wall that can be removed if the teachers want. With the multiage grouping, the teachers can move students to different



One of four color-coded pods that students call home for all three years.





classrooms based on their abilities rather than their age or grade level. The students spend the entire day in their pods, venturing out only for lunch and gym classes. Any services they might need—such as counseling or special education—are provided within the pod. Each classroom even has its own set of toilets.

Pathfinder's educational program, supported by the facility's design, gives the students "lots of continuity and a sense of identity," says Jo Anne Murray, president of Murray & Associates Architects, Glen Echo, Md., and a reviewer for *Learning By Design*. The fact that the teachers work with the same children for three years gives them "a great sense of responsibility to make sure each child is successful," says Murray.

C. William Day, senior analyst at KBD Planning Group, Bloomington, Ind., and a *Learning By Design* reviewer, believes Pathfinder's self-contained, school-within-a-school design is the wave of future in school construction. "I think that's the direction we're going," says Day. Speaking for his colleagues on the judging panel, Day says, "We liked the break from the traditional double-loaded corridors and square classrooms." Students become more comfortable and develop role models with a small group of teachers who work with them for an extended period of time, says Day.

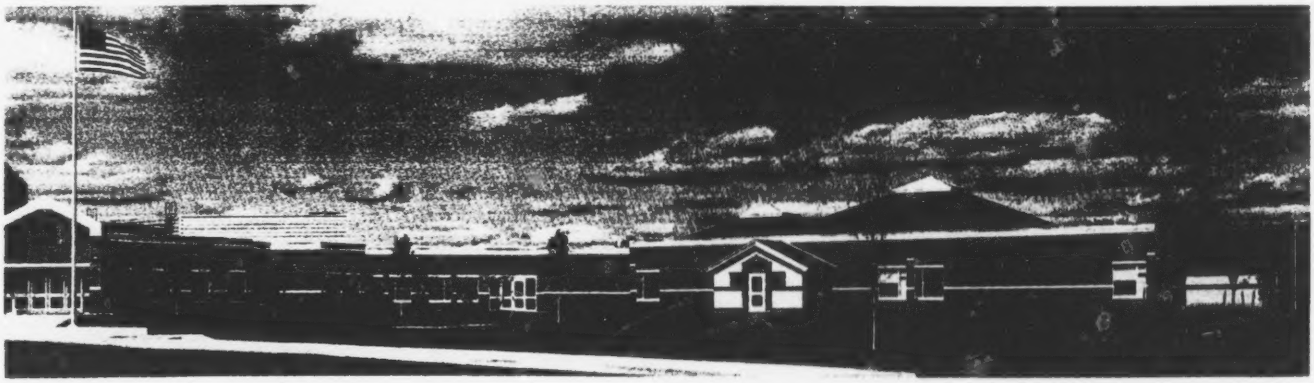
The third *Learning By Design* reviewer, Richard G. Poole, partner of Shriver and Holland Associates, Norfolk, Va., says Pathfinder's design eases the young students' first transition from home to school. "They've created a close-knit group," says Poole. "The kids don't feel they're in a huge mass of children."

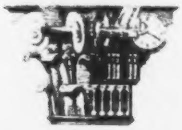
Pathfinder was built on 20 acres of what used to be an apple orchard. The community wanted the building to reflect Fremont, says McGraw. "We talked to a number of people and researched about the community," he says. The design and appearance of the one-story brick building reflects elements of the area's prominent structures.

Like most communities these days, Fremont wanted to be able to use the new school as a community center during after-school hours. To make this easier, the gymnasium and cafeteria are set up next to each other; a portable wall between the two can be removed for special events. The larger room is used for, among other things, adult recreation classes and junior varsity basketball practice. The pods can be shut and locked when the school is being used for other activities.

MULTIUSE GYM DOUBLES AS CAFETERIA AND PERFORMANCE SPACE.

Construction was completed on the school in 14 months; it opened September 1997. "Pathfinder was one of our most rewarding projects," says McGraw. "They had a strong idea of their program, and we built around it." ■





Setting the Vision

The school board's role in school construction

By Julie Rasicot

Every month, Ginny Hovsepian and two colleagues at the Clovis Unified School District school board put on their mental hard-hats and talk contractors, building supplies, and change orders.

The three make up the board's school facilities subcommittee, which meets with school administrators for regular briefings on ongoing construction projects in the 32,000-student California District. Clovis Unified has built about a dozen schools and added on to another eight since 1987

"What's good about the subcommittee is that we can ask more questions. We stretch the limits in the subcommittee. As a board member, it's a more relaxed atmosphere," Hovsepian says. "Board members get to inject earlier in the process. It gives the administration an idea that the board is willing to be innovative. We see a lot of things in the talking and thinking through stage before it's determined that it's going to be done. We think through a lot of angles."

Whether in districts large or small, boards often play a vital role in the school construction process. In any building project, the stakes—both financial and political—are often high, and success ultimately can depend on the leadership the board provides. It is the board's responsibility to set the vision for school projects and make sure that vision is carried out, school board members and administrators say.

The decision to build, renovate, or add on to a school is the first step in a long process that includes such major tasks as securing funding, hiring an architect, and designing the facility. Missteps along the way, such as failure to convince a community of the need for the project or selecting the wrong architect, can cause a project to self-destruct.

"Building a school is far more than just construction," says Debbie Moore, director of operations for the Council of Educational Facility Planners. "What gets lost in translation is what is needed in the building. You get a building that doesn't work."

Defining the board's role

When it comes to building schools, some say the ideal role for board members is that of policy makers who leave the details to more experienced outside professionals or staff. Others say they achieve success through a process that keeps at least some board members closely involved through subcommittees, much like the Clovis district does, or with the board serving as its own project manager.

©FPG/Steve Smith 1996

Donald Cross, director of facility planning and design for Colorado's 88,000-student Jefferson County School District, says it's important for school board members to understand the district's long-range facility needs and plan to meet them, but to leave the daily nuts and bolts work to staff. The district, the largest in Colorado, recently won approval of a $265 million bond issue to support the next five years of an 11-year program to replace or improve schools 35 years old or older.

> *Boards still retain the key responsibilty of establishing a vision for a district's educational facilities.*

"My feeling is [board members] really shouldn't be" actively involved, he says. "If the school board gets into micromanagement, it can create all kinds of problems."

Officials say a board's role in the building process usually varies according to the size of its district and can be dependent on

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It's important to make sure that the architect shares a similar philosophy with the board.

its available resources. Because of limited staff and funding, boards in small districts often take a more hands-on approach, requiring members and administrators to become de facto experts on everything from architect selection to financing strategies.

That's the case in the Columbus (Texas) Independent School District, where the school board is learning a lot about such tasks as hiring an architect and convincing voters to approve bonds for school construction.

"I didn't have any idea that school trustees got involved in those kinds of issues," says Pam Potter, the senior member of the seven-member board serving the district of 1,700 students.

Fresh from the board's third and successful effort to convince voters to approve a $3.8 million bond for school construction projects, Potter now knows that the board plays a critical role in determining whether such efforts will be successful.

"Taxpayers hold us accountable," she says. "They don't hold the superintendent accountable. I can assure you that when taxpayers are unhappy, it is the school trustees they call."

Professional expertise

Some boards rely completely on facility planning departments or turn the task over to administrators and outside consultants, limiting their involvement to signing checks and approving the finished product. For districts that can afford to do so, hiring consultants and planners can provide the expertise that board members and school administrators may not have.

"If you can afford to have a planners, it's a really good idea," says Laura Walker, senior legislative advocate for the California School Boards Association. "Boards have so many demands that they can't be expected to know everything."

For some districts, hiring such professionals is an unaffordable luxury. In those cases, superintendents and board members often serve as their own project managers, dealing directly with architects and contractors. But problems can arise, architects and administrators say, if board members try to impose their limited construction experience on a school project.

Kevin Smith of Claycomb Associates Architects in Dallas sees the board's ideal role as one where members offer positive support and communicate their concerns without advising how to solve them. "Once you both decide you've got the best answer, you proceed from there," he says. "That kind of input and exchange is very healthy."

Securing the funding

While levels of involvement in the building process vary, most officials agree that board involvement is most critical when it comes to attempts to secure funding, whether from district residents or the state. Without strong involvement and a show of unity, the passage of a bond referendum is unlikely, they say.

"That is the most important role [the board] can play," says Paul W. Erickson, president of Armstrong Torseth Skold & Rydeen Inc. of Minneapolis, which has built schools in 22 states.

One of the factors that plays into a successful funding initiative is the board's ability to judge the community's interest in approving a project and making sure a proposal fits its desires. Erickson recalls one board that tried to get a bond issue approved three times with three different sites and prices. The board was dealing with three communities squabbling over the location of the two-school project and its projected cost. Finally, a bond issue that started at $75 million was approved at $63 million, and the project's location was moved back to the site of an old school.

"The board really played a major role in listening to what the community had to say. It came down to: 'We have to pass this bond referendum and how are we going to do it?'—not necessarily the best option," Erickson said. "I'd get calls every two to three hours: 'Can we get down to this? What if we cut that?' I was right in the middle of it."

But involving the community doesn't always work, as Potter and the other board members in Texas's Columbus Independent School District learned. The board ran textbook-style campaigns twice—including using phone banks, alerting the media, and printing placards—trying to get a bond referendum passed, only to see voters soundly defeat its proposals, spurred on by a taxpayers' group opposed to the spending.

When the board made its third attempt in December 1997, members decided to forgo the traditional approach. Touting a revised plan for the money, they enlisted the support of the taxpayer's group, kept a low profile, and hoped for low voter turnout. The bond was easily approved Dec. 9 with less than 10 percent of voters casting ballots.

In 1992, in California's Palm Springs Unified School District, the school board produced a video of crumbling buildings to demonstrate why a $70 million bond measure was needed. The board also included community members, such as members of the senior citizen centers in the district's four cities, on a committee looking into the bond issue.

"It's essential to involve the community when you're attempting to pass a bond," says Leslie DeMersseman, a 13-year veteran of the board.

And whenever a new school is being built, the board shows its appreciation to the voters by putting a sign on the site thanking them and explaining how the project was funded. "There hasn't been a new school built in our district that doesn't have a great big sign in front of it," DeMersseman says.

Political decisions

Other important school construction decisions typically made by the board are the selection of a site and architect and approval of the design for the school. Like the battle to secure funding, such decisions can become highly political, depending on a board's involvement.

"Often the selection of an architect is a terribly politicized process," says Peter Samton, managing partner of the firm Gruzen Samton in New York City. Samton, whose firm was one of four chosen by the New York City Board of Education to develop prototype school designs, says he has found that in smaller districts, the politics are often more difficult because major decisions are being made by board members rather than staff. And those board

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members, he says—most of whom are elected—might feel beholden to those who put them in office and face pressure to choose a certain architect.

"That is, unfortunately, how many decisions on architects are made," Samton says.

Board members also face pressure when it comes to determining a school's location or what features should be included in its design.

The Dry Creek (Calif.) School District recently found out how political such decisions can become when it learned that a middle school under construction wouldn't be finished on time and students would have to be housed elsewhere until it was done.

"It was very emotional," said Diane Howe, a member of the school board for the 4,500-student district. To decrease the tension surrounding the decision, the board analyzed the problem and presented three options to the public.

"Many times if you give the opportunity to the community to speak, and if they can sit there and understand this is not a haphazard decision, then it goes down much easier," she says.

In Montgomery County, Md., the proposed order in which schools will be replaced or renovated often becomes highly politicized. "Politics can, in the purest sense, come into play with constituents writing school board members, lobbying members," says George Margolies, staff director for the school board in the 125,000-student district.

Recently, parents of students who attend Winston Churchill High School argued that the school was in greater need of modernization than the high school ahead of it on the list. District officials could work on only one school at a time because there was only one "holding" school available for students to attend while their own school was being renovated. The Churchill parents successfully argued that the modernization could occur while the students were in the building, although doing so would add $500,000 to the project's cost.

"Politics, lobbying by citizens, prevailed upon the board," Margolies says.

The role an architect plays in a project can vary depending on a board's philosophy. Some see the architect as the instrument to define the board's vision, while others rely on the architect to propose a plan.

"We don't claim to be educators, so we can't really guide the schools," says Bill Brubaker of the architectural firm Perkins & Will of Chicago and author of an upcoming book on school planning and design. "But what an architect can do is to respond to those needs and design a functional and up-to-date environment."

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Board involvement is most critical when it comes to attempts to secure funding.

Kevin Smith says he and his colleagues will meet with board members, school staff, and administrators to learn what they're looking for before putting pencil to paper. But often, he says, the officials look to the architects for direction.

"A lot of them say, 'You're the architect. You tell us what we need,'" he says.

Board members say it's important to make sure that the architect shares a similar philosophy with the board and can provide evidence of an ability to transform their ideas into a functional reality.

DeMersseman, the Palm Springs board member, advises boards to inspect buildings designed by a prospective architect before making a decision. "Find out, are they livable? Is there enough storage space?" she says. "Boards really do need to get out and talk to people."

The Polk County School Board in Florida has found that the building process runs more smoothly if the principal of the school is involved in the selection of an architect and the school's design because the principal knows best what the school's needs are.

"When I first came on the board 11 years ago, just the board members picked the architect," says Andrea Whiteley, board member and president of the Florida School Boards Association.

"But we have found that it helps to have the principal involved, and it helps keep politics out of it."

Changing attitudes

For their part, some architects say they are often frustrated by two attitudes they find prevalent: A project must be done for the lowest price, and the old way is the best and only way.

"It's difficult at times for a small school district to break out of what they've been doing and change," says Smith. "It's tough for some school boards to have enough of a long-range planning concept to understand that the best answer might not be the best answer up front, but it might be long term."

Some board members, administrators, and educational facility planners say that in recent years, they've had to change their approach to building to include community input right from

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the start. Such factors as an increase in site-based management and growing fiscal conservatism mean that communities no longer give boards carte blanche when it comes to designing and paying for schools.

Nancy Myers, an educational facilities planner with The Myers Group located outside Indianapolis, says school districts used to hire her mostly to help develop educational specifications for a new school; now she spends most of her time helping boards find ways to include community input at a project's inception.

Recent legislation in Indiana is forcing school officials to learn the hard way that if they don't have the community's support to pay for a school, the project can be delayed or terminated. The law allows citizens to put the issue to a petition race. Whoever gathers the most signatures for or against a proposal wins. The losers must wait one year before trying again.

"Those people who say we're going to do it the way we've always done it are getting burned," Myers says.

Terry Bradley, deputy superintendent for administrative services for the Clovis Unified School District, says he also has seen an increase in community involvement over the past years.

"Typically 10 years ago, we would not have had a committee work with an architect for six or seven months in laying out the design of a school, and today we do," Bradley says. He attributes the increase to the public's interest in fiscal accountability for school officials.

"When you are entrusted with that kind of money," he says, "you have to make sure the community understands what you're doing with it."

"Community involvement has become a big topic," agrees Brubaker. "It used to be that the president of the board, the architect, and the superintendent sat down and made a decision."

Brubaker said his firm uses several tactics to gather community input when working on a school project. While working on plans for a new high school in St. Paul, Minn., for example, the architects spread a huge paper map of the affected neighborhoods on the floor and invited residents to walk on it and make comments. "It turned out to be a great ice breaker," he says.

Although planning a school has grown more complicated over the years, officials agree that boards still retain the key responsibility of establishing a vision for a district's educational facilities and making sure that vision reflects the educational philosophy of its constituents.

"Board members can be good board members for a construction project if they are good members for the school district as a whole," Smith says. "If they handle the architectural project in the same way they handle the school district, then everything will be fine." ■

***Julie Rasicot** is a freelance writer in Silver Spring, Md.*

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Less Is More

Collaborative learning environments for the next century

By Steven Bingler, AIA

As we approach a new century, two compelling circumstances are paving the way for a new approach to the design of environments for learning. The first is a new understanding of how students learn best, leading educators to replace the old factory model of education with a studio model in which students work independently or in small, problem-solving groups.

The second imperative is that we can no longer afford to build and maintain the stand-alone physical infrastructure that has characterized factory-model schools. As economic and ecological sustainability become more and more essential for community growth and development, we will soon look back on the last hundred years wondering how we could have been so wasteful. In retrospect, we will see that we have built and rebuilt billions of dollars worth of limited-purpose school buildings.

Most of these stand-alone schools were built to last for an average of 40 years. Over the past hundred years, we have built and rebuilt them two and a half times —or at least, that's what everyone thought we were doing. In 1996, the U.S. General Accounting Office declared that we were $112 billion behind in deferred maintenance. The result is a vast collection of school buildings that are unfit for learning. We are now in our third 40-year cycle of school building obsolescence, beginning to renovate or replace nearly 80 years of existing infrastructure. This includes not only the past 40 years' worth of now-obsolete buildings, but a good portion of those constructed in the first 40-year cycle that were renovated in the second cycle (or in many cases never renovated at all) and are now due to be renovated all over again. On top of that, we are also building new facilities to accommodate increases in enrollment.

All of this at a time when, despite economic prosperity, taxpayers have expressed a national aversion to supporting capital projects.

But what if we were successful? Imagine the legacy that we would leave for our children. In 30 years, they will face yet another cycle of obsolescence, and a full 120 years' worth of school building infrastructure will have to be renovated or replaced all over again. And by then there will be other pipers to pay. One of them will be the daunting cost of social security. In the 1950s, when most baby boomers were born, there were 16 workers paying into the system for every social security recipient. At present, there are only three workers for every retiree. By 2030—the year the last of the baby boomers will retire and the year when the current trust fund is projected to be depleted—the ratio of workers to retirees will be only two to one.

In partnership, a corporation, a museum, and a school district established a charter school at the Henry Ford Museum in Dearborn, Mich.

The need for frugality has never been more essential to the social and economic survival of future generations. But necessity can be a stimulus for innovation—a reminder that some of the most productive and compelling environments are not those that stand alone, but those that are integrated, energizing, cooperative, and efficient. Examples of these collaborative initiatives exist across the country.

Museum mentors in Michigan

In Dearborn, Mich., a partnership of the Ford Motor Company, the Henry Ford Museum and the Wayne County Regional Service Agency has produced a charter high school for one-third the cost of a stand-alone school. Located in the Henry Ford Museum, this innovative 9-12 public education institution gives students access to one million artifacts of manufacturing arts and sciences, along with built-in mentorships with some of the most experienced museum curators in the country. Unique in its physical structure, the Henry Ford Academy furnishes students with a tangible hands-on learning environment. The main museum building, which encompasses over 12 acres of exhibit space, houses the ninth-grade class.

Just outside the main museum building's walls is Greenfield Village, a collection of nearly 100 historic buildings purchased, dismantled, and reconstructed in Dearborn by Henry Ford. Included in the collection is the Menlo Park Laboratory where Thomas Edison invented the light bulb, the Wright Brothers' bicycle shop, Noah Webster's house, Washington Irving's birthplace, and a host of other compelling monuments to American history—and to math, science, language arts, and social studies.

The Henry Ford Academy is a premiere model of synergy resulting in economy and sustainability. It is a project that came to life because each partner had had a stake in it. The Ford Motor Company knows that the success of the future global workforce will require innovation and ingenuity. As for the museum, it was Henry Ford's dream that the artifacts he collected would be used to

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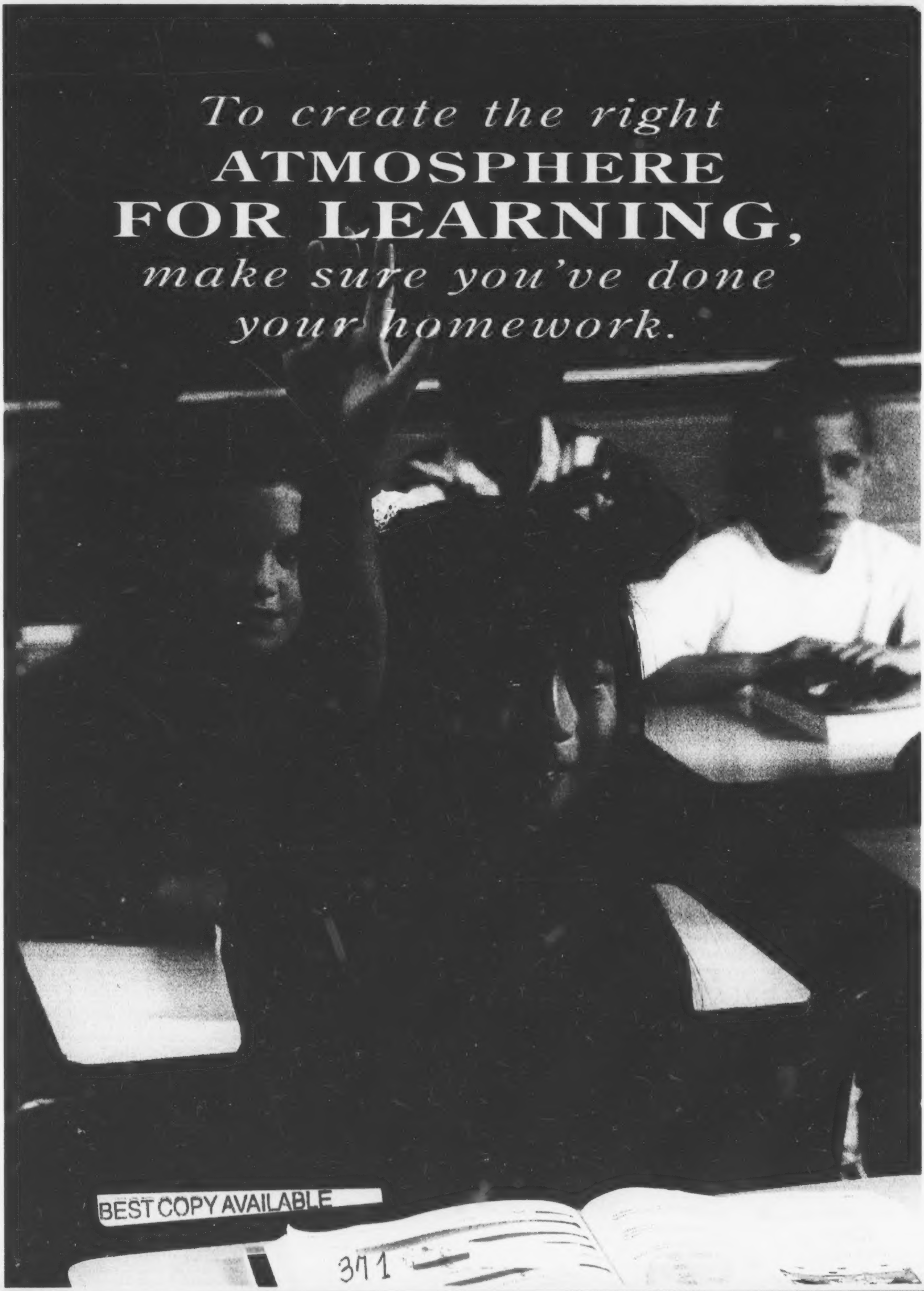
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Good indoor air quality starts

Good indoor air quality (IAQ) can be as important in your classrooms as your teachers. Poor IAQ in your school may expose students to airborne viruses, toxins and pollutants that can threaten their health and their ability to learn. To help ensure a good indoor environment, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) developed Standard 62-1989. This document specifies clear, objective guidelines

ASHRAE STANDARD

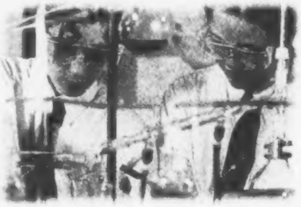
ASHRAE 62-1989

Ventilation for Acceptable Indoor Air Quality

Contaminant Source Control

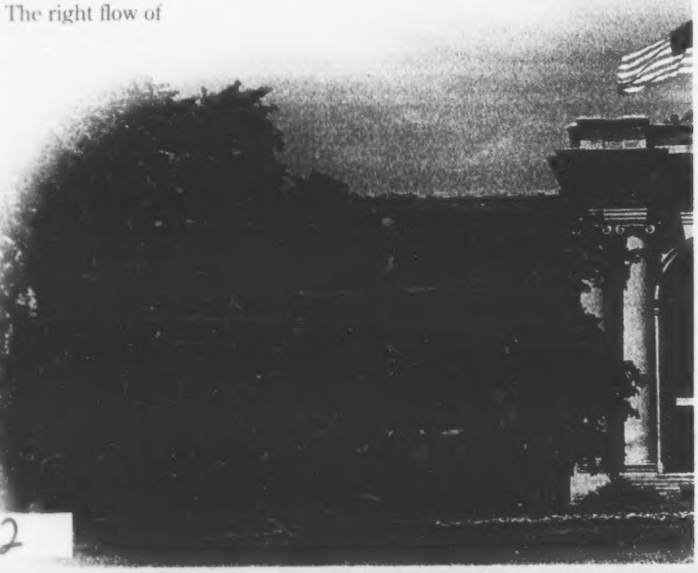
Controlling contaminants at their source is a fundamental element of any good IAQ strategy. Stopping contaminants from entering the building and curbing internal microbial growth can help avoid the effects of poor IAQ such as decreased productivity and absenteeism. Common sources of contamination include students and their activities, outdoor pollutants such as vehicle exhaust, outgassing of chemicals from carpeting and other building materials, and internal microbial growth (mold and mildew) from damp building areas.

Mold and mildew thrive in an environment containing organic matter, moisture, moderate temperatures, and lack of light. Because of their inherent design, HVAC systems can provide an ideal environment for microbial growth. Strict compliance with ASHRAE Standard 62-1989 requires proper equipment and system design which are critical in reducing the risk of system contamination.



Ventilation

The second element of good IAQ is adequate building ventilation. The right flow of outdoor air must be brought in and conditioned to dilute the concentration of indoor contaminants. ASHRAE Standard 62-1989 lists detailed ventilation requirements based on building type, system type and usage specifications. But conditioning outdoor air can be very expensive. To help system designers manage ventilation and operating energy consumption, precise monitoring, measurement and control of outdoor airflow may be necessary.



with learning the basics.

for HVAC system design to achieve adequate indoor air quality through contaminant source control, ventilation, humidity management and proper filtration. As a result, ASHRAE Standard 62-1989 has established the "standard of care" for HVAC system designers nationwide.

Creating the right atmosphere is more important than ever. Insist on strict compliance with ASHRAE Standard 62-1989 from your system designer or engineer. The following are the four fundamental elements of IAQ.

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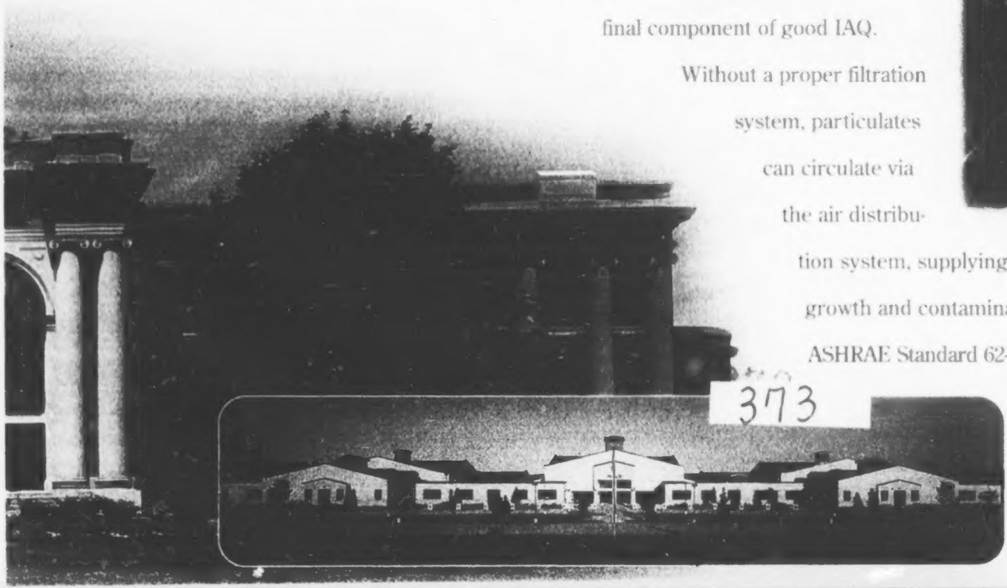
Humidity Management

Managing indoor humidity is essential for good IAQ. ASHRAE Standard 62-1989 recommends maintaining indoor relative humidity levels between 30 and 60 percent. Humidity levels below 30 percent can cause respiratory and bodily discomfort. Relative humidity levels above 60 percent increase the potential for mold and fungi growth which can lead to musty odors, illnesses and costly building damage. Humidity control in a school environment is especially challenging for HVAC designers. People themselves are a source of moisture and contribute to overall humidity levels. The large number of students and the resulting high ventilation rate may cause unusually high humidity levels within the classroom. Careful system selection and control in schools are key to proper humidity management.

Filtration

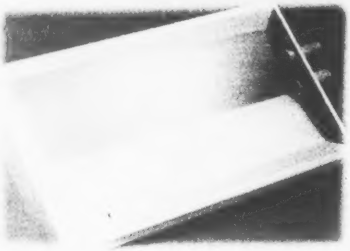
Adequate filtration of airborne particles is the final component of good IAQ. Without a proper filtration system, particulates can circulate via the air distribution system, supplying a food source for microbial growth and contaminating the entire building. ASHRAE Standard 62-1989 requires appropriate filtration levels and regular maintenance of filtration systems to prevent building contamination.



Trane is the SOLUTION *to your IAQ problem.*

Trane has the knowledge, resources and experience to help achieve good indoor air quality. The experts at Trane can work directly with your HVAC system designer on new and renovation projects to help them select the best and most cost-effective solutions for your schools. That's why **all** Trane HVAC products and systems offer features that meet the requirements of ASHRAE Standard 62-1989 for contaminant source control, ventilation, humidity management and filtration.

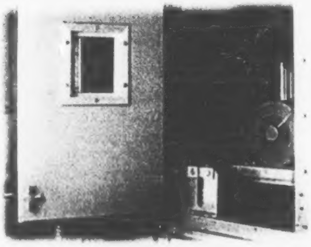
Drain pans that really drain



Moisture removal from drain pans is one of the simplest yet most important aspects of good IAQ. Without adequate drainage, water accumulates in drain pans and can become contaminated with microbial growth that is then circulated throughout the building. To combat this problem and comply with ASHRAE Standard 62-1989, Trane designed double sloped, corrosion-resistant drain pans that prevent standing water and reduce the potential for microbial growth. This unique feature is available on **all** Trane air handling products from the smallest fan coil units to the largest central station air handling units.

Easy access and cleanability

Inspection and cleaning of interior air handling surfaces is vitally important to good IAQ. Without proper cleaning, contaminants such as dirt and microbial growth can accumulate in interior wet sections and circulate throughout the building. To help solve this problem, Trane designed interior HVAC surfaces that are both accessible and easy to clean. For instance, the Modular Climate Changer® air handler can be configured to provide easy access to areas requiring routine maintenance and inspection. What's more, smooth, non-porous surfaces are available on the interior wet sections of **all** Trane air handling products to make cleaning even easier.



Cost-effective ventilation airflow measurement and control

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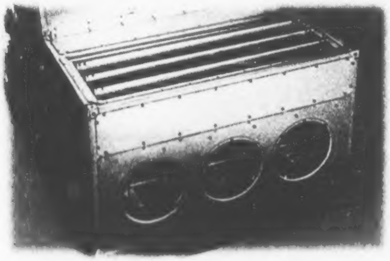

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provide a broad-based education in both the academic and practical disciplines. The Wayne County school district is interested in exploring new models of learning and recognizes the important benefits of working with the corporate community, where most of its students will eventually apply the lessons of their educational labors. By working collaboratively, these partners will produce a compelling and exemplary learning environment at a cost savings to Illinois taxpayers of over $4 million for facilities alone.

Fitness and farming in California

Another example of innovative partnering is underway at the Lincoln High West Campus located in Stockton, Calif., where students were sent out on treasure hunts to find out what they could learn from the community. One group went to a shopping center and found a fitness center where trainers taught about nutrition, cardiovascular activity, and exercise equipment in a personalized environment. Recognizing the value of the comprehensive attention personal trainers give to their clients, the students invited the fitness center operator to come to planning meetings for the design of their new school.

After the third meeting, the fitness operator proposed that if the school district would provide the land, he could build a fitness facility at the new high school at no cost to taxpayers. A fitness center's primary hours of operation are before and after work, so he reasoned that students could use the facility during school hours. Working with their own physical education teachers, as well as the fitness center trainers, students will get the personal attention they were looking for at a net savings in cost to district taxpayers of $2 million.

Other students suggested that the most powerful learning environment they could imagine would be a farm. As the school's design evolved, it became apparent that a rustic setting, peaceful and bucolic, would best serve their educational needs. Planners realized that many businesses conduct employee retreats and often need facilities to house their meetings. The plans for the educational facility already included an extensive computer and technology center consisting of meeting rooms, computer labs, teleconferencing/distance learning capabilities, an auditorium and large group meeting rooms. And now the opportunity presented itself for amortizing the cost of these facilities through income generated by a business conference center. A marketing consultant confirmed that such a facility would be economically viable in Stockton—and that the resulting joint-use facility would bring significant savings to taxpayers. The project is awaiting final approval from the state.

After hearing about the plans for the Lincoln West High Campus, the Western Placer Unified School District, located just two hours north of Stockton, decided to use the same participatory design model to create a district-wide facilities Master Plan. Similar synergies evolved that resulted in potential monetary savings over $11 million for the district and multiplied educational opportunities for the area.

One bonus came from a real estate developer who donated to the district 300 acres of prime real estate that includes a Native American archaeological site. The developer also donated 2,000 mandarin orange trees, which will be planted on the site. At the end of seven years, the mandarin grove will provide annual revenues of more than $400,000 per year for the district. The agricultural project will be managed through an innovative environmental studies curriculum in which students will receive academic and ecological training in nontraditional surroundings.

Zoology in Minnesota

The Zoo School located outside of Minneapolis is situated within the boundaries of the 500-acre Minnesota Zoo. This optional, two-year public high school just began its third year of operation. The 400 juniors and seniors who attend all pursue independent research projects that take them into the zoo. The zoo donated the land for the school to use and uses the two-story building during the summer for its own educational programs. Zoo scientists also teach a course in marine biology at the school.

Admission to the Zoo School is competitive, but instead of grades and test scores, applicants are judged specifically on essays explaining why they want to attend. Small size is one big draw for students. The school is divided into "houses" of 100 students each. This arrangement replaces conventional home rooms and helps to foster collaboration. Curriculum for each house is created by three full-time teachers and one part-time teacher, who draw on a variety of sources besides textbooks. Lessons in social studies, English, and environmental science are woven into a single unifying theme or question. Computer-equipped cubicles or "pods," arranged around the perimeter of each house, are shared by 10 students each.

The school has yet to have a fist fight. Test scores and college placements are comparable to those in other high schools in the district. Students who don't excel in traditional settings often perform well at the Zoo school, because they can structure their classes in a way that excites them.

The learning environment of the future

These are just a few of the many districts around the country where educators and architects are designing schools that reflect current research about how students learn best — and, at the same time, expanding the boundaries of the classroom into the community through shared-use projects and collaborative partnerships.

But developing more efficient and effective learning environments will require new tools. One of the most important of these tools will be a more systemic and participatory design process. The 20th century has been an age of specialization; there are now more than 35 kinds of medical doctors, for example. But the new century will be an age of widespread integration. For that to happen, people will need to be able to speak each other's languages and know more about each other's disciplines. Those who dare to embrace the challenge will forge new lines of communication between educators, psychologists, architects, urban planners, software designers, students, parents, and representatives from community businesses and not-for-profit organizations. The end product will be a new kind of learning environment that spans a spectrum of learning as rich and varied as the lifelong learners who create and use it. ■

Steven Bingler, AIA, *is president of Concordia Architects in New Orleans.*

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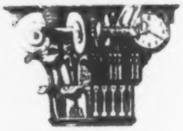


Ergonomically Correct Classrooms

Consider students' developmental needs when furnishing your schools

By Kevin Bushweller

Next time you visit a school, take a close look at how well the students fit into their physical surroundings. Are shorter children's feet dangling above the floor because they can't adjust the height of their seats? Are kids slouched forward with their faces nearly pressed against computer screens? Are some youngsters twisted sideways on wood or metal chairs that are permanently linked to desks?

If you see any of these situations, your district probably needs to take a closer look at students' ergonomic needs. Most schools, in fact, have not paid much attention to how classroom working environments should be furnished to meet the developmental and learning needs of children, according to school architects, ergonomists, and educators.

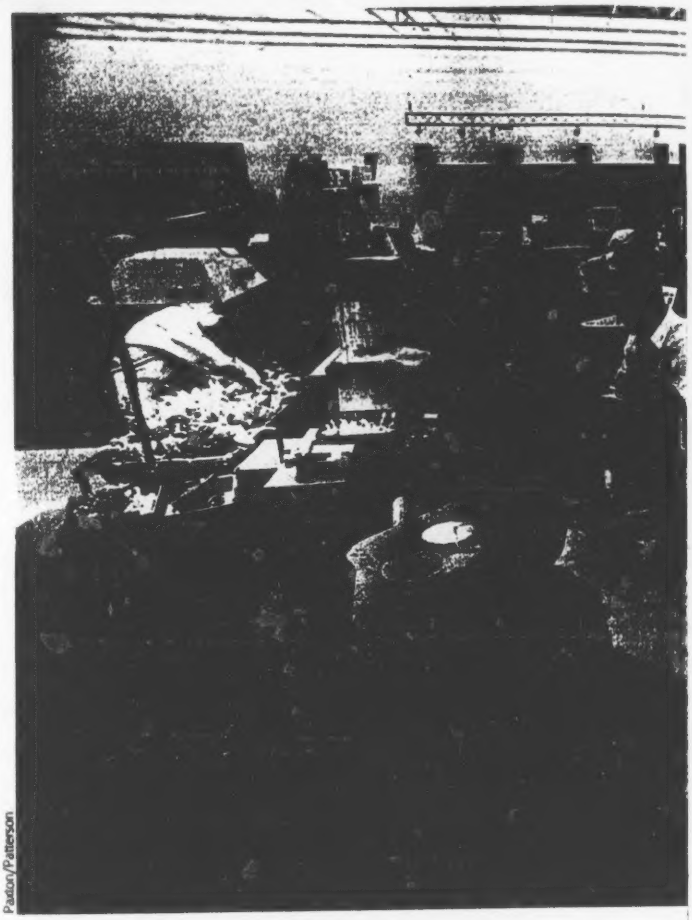
That is the case even though ergonomics—the study of the relationship between people and their work environments—has gained increasing attention in recent years. The trouble is, most of that attention has been focused on the needs of adults, not children.

"It is absolutely horrendous what you see in schools," says *Learning By Design* reviewer C. William Day, a school facilities planner and senior analyst with KBD Planning Group, Inc., in Bloomington, Ind. "You never see anybody paying much attention to this problem. If youngsters sit in chairs that are inappropriate for their size and they have to twist and turn to find a comfortable position, that will have a bad effect on their physical development."

Common-sense findings

In his office, Day keeps a copy of a national study of the effect of poor furniture choices on students' physical development and learning. The study—*The Coordinated Classroom* by Darell Boyd Harmon—recommends several common-sense ways in which schools could do a better job of meeting children's ergonomic needs.

"Fixed type and unadjustable equipment ... such as screwed-down desks and rigid desk-linked chairs ... should be recognized as potentially damaging to both the child's physical well-being and his educational advancement," says the study. "Rigid, fixed, unadjustable seating and working equipment should never be used in [schools] where either the physical or psychological growth of the child is rapid."



Paxton/Patterson

FOR PHYSICAL AND EDUCATIONAL DEVELOPMENT, ERGONOMISTS SAY, CLASSROOMS SHOULD HAVE A VARIETY OF LIGHT SOURCES AND FIXTURES, ADJUSTABLE CHAIRS THAT ROLL, AND A WEALTH OF SPECIALTY LEARNING AREAS.

The study goes on to admonish schools for treating kids like widgets: "A restraining influence on both curricular and child development, especially at the lower levels of education, is the assumption that every child must have a desk of his own. [This has led] to furnishing every child with identical pieces of furniture."

These recommendations are hardly revolutionary. But the sad thing, Day says, is that the report was published in 1949. And no serious research has been done on the topic since then, he says—even worse, many schools are still making the same ergonomic mistakes today.

Among the mistakes as common now as 50 years ago: Table tops are too high for young children, seats cannot be adjusted for height, desks are not angled to create a more natural writing surface, and many classrooms are still plagued by flickering florescent lights.

Technology concerns

A more recent ergonomic consideration is the placement of computers, which educators and ergonomists alike say is often done without much thought for how the arrangement will effect stu-

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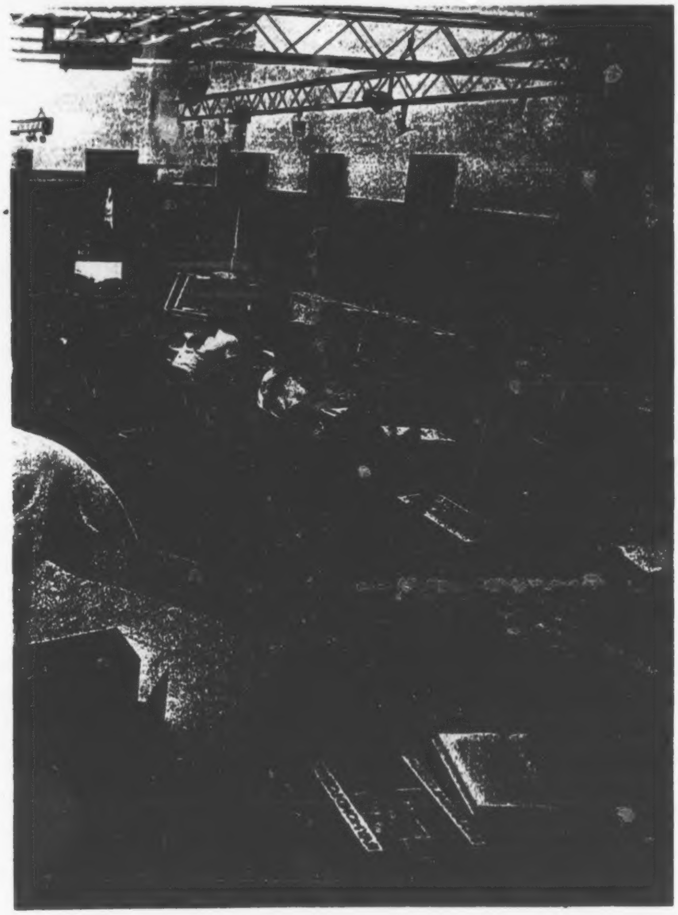

dents' posture and vision.

Bill Skilling, principal of Byron Center (Mich.) High School, is writing a book on how schools and classrooms should be designed to address the developmental and learning needs of children. Skilling, who has traveled around the country giving talks and seminars on school design, says he has a somewhat cynical view of schools that are touting themselves as 21st-century learning environments.

"They are the schools built in the last five years with 1950s architecture using 1990s technology to deliver a 1960s curriculum," he says jokingly. "If you take out the technology and ask what is different, the answer is, nothing.

"I've been all over the country in search of a 21st-century school, and I can't tell you what 21st-century schools look like. What I can tell you is what they don't look like."

Skilling is helping design a new school building that he hopes will come close to filling the bill. But he says he's waiting until he moves into the school before he can determine whether the building and its furnishings will meet his ideal for the school of the future.

Among other things, Skilling says, there will be no traditional classroom desks in the new building. He believes traditional desks are poorly designed and losing their utility in the modern world. Imagine trying to work with a laptop computer and a paper notepad on a traditional desk, he says. "It just doesn't work."

In the new building, two of every three desks will be 30-by-60 inch tables that accommodate two students each. The front edge of the tables will be angled to accommodate students' arms while they are writing. And the chairs will be adjustable in height.

Teachers' needs have also been taken into consideration at the new school, Skilling says. Working with a Michigan company called Interior Concepts, Skilling developed a special desk for teachers that has two computer monitors on arms that can be adjusted easily up or down. Also, the teacher's desk can be raised or lowered up to 12 inches with the touch of button.

But such attention to ergonomic computer installation is the exception, rather than the rule, in schools, ergonomists say. The most common mistake is to simply set computers on flat desks so that the monitor screens are either at or above children's eye level. This arrangement entices kids to slouch forward and place their faces within a few inches of the screen, creating stress on their eyes as well as their necks and backs.

"This is just bad, bad news for kids," says Dennis Ankrum, an ergonomist for Nova Solutions, Inc., an Effingham, Ill., company that designs and manufactures computer work stations for industry and education. "Remember when your mother told you not to sit too close to the television? The same advice goes for computers."

The computer user's eyes should be more than 25 inches from the screen, Ankrum says. In addition, he and other ergonomists argue that placing the monitor at eye level—as one school of thought dictates—is actually bad for a person's vision. When the screen is at or above eye level, the user's eyes must be opened wider in order to gaze higher. This dries out the eyeballs and puts stress on the eyes.

Rather, Ankrum says, the monitor should be placed at an angle well below the computer user's horizontal eye level. The result is a downward gaze at the monitor—similar to the position most people use to read a book. With a downward gaze, the person's eyelids close a little, reducing the likelihood of dry eye syndrome. Looking downward also reduces the stress on the muscles that converge and focus the eyes.

Using such ergonomic design theories, Nova Solutions has created work stations in which computer monitors are placed at an angle under a glass window below the surface of the desk, rather like the teleprompters used by television news anchors. Not only is this a better angle for viewing the computer, Ankrum says, but it creates extra work space for the person because the computer monitor isn't hogging all the desk space.

Flexibility and other considerations

Another consideration when furnishing a classroom is flexibility. Furniture that is bolted to floors and hard to move is cheaper in the short run than easily moveable, more modern furniture. But the cheaper furniture is losing its utility, educators and ergonomists say.

"Furniture permanently attached to the walls or floors is really becoming a thing of the past," says Cindy Wessel, national sales manager for Interior Concepts, a Spring Lake, Mich., company that worked with Skilling to design his new school. "As technology changes, you have to have furniture that can be moved around and reconfigured easily."

Equally important, she says, is managing the wires and cables within a classroom. She says she has seen many classrooms where

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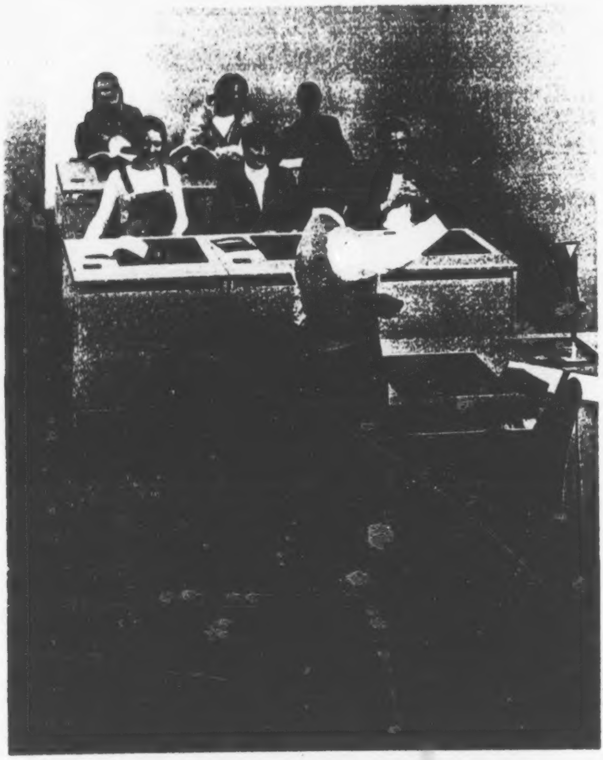

Nova Solutions, Inc

In this classroom, computer monitors are placed below eye level under glass panels on the desks. Some ergonomists say this downward-reading angle is a more natural way to look at a computer screen.

Many classroom furniture manufacturers now incorporate efficient wiring systems inside the furniture. That makes classrooms less dependent on wall-mounted electrical systems.

high-priced computers are placed on tables, leaving the wires to dangle all over the place. "It's a serious safety hazard, and it looks terrible," says Wessel. "Do you really want your kids' feet dangling in wires?"

To address the problem, many classroom furniture manufacturers now incorporate efficient wiring systems inside the furniture. That makes classrooms less dependent on wall-mounted electrical systems, Wessel says.

Lighting to learn by

Lighting of classrooms is also a problem. In fact, schools are notorious for neglecting lighting as well as furniture needs, charges Richard L. Shadrin, a former teacher and school principal who is now global director of learning systems for Paxton/Patterson, a Chicago company that designs and furnishes specialty classrooms.

"It's a big-money issue," Shadrin says, so finding the resources to pay for appropriate classroom furnishing or lighting is on the low end of most schools' priority lists.

The best lighting, he says, is a combination of florescent and incandescent light. But most school classrooms have only overhead lights, creating a factory-like lighting atmosphere. Shadrin advises schools to use task lighting: lamps or other types of lights that illuminate smaller areas where students are working.

Unfortunately, says facilities planner Day, even relatively new school buildings tend to light classrooms with standard florescent light tubes. Such lighting, he says, is inadequate and particularly irritating to students and teachers when dying tubes start flickering and shimmering.

"The trouble is, better lighting is more expensive and harder to clean," says Day, who advises schools not to make lighting choices "simply for the ease and convenience of custodians."

The Coordinated Classroom stated emphatically that a child's binocular field has a significant impact on school performance. And that field of vision can be affected by poor lighting or poor furniture arrangement.

For instance, the study says, students should always work on shadow-free working surfaces. Yet it's not uncommon in public schools to see children squinting and struggling to find the right body positions because half of their working surface is bright and the other half is in shadow.

The field of vision where students are working should be brighter than the background field, the study adds. And that's where task lighting comes in: Well-designed and well-placed task lights brighten the area where students are working, in comparison to the background.

Glare on computer screens has also become a problem, and one that should be taken into account when designing classrooms where there will be lots of computers. Computer screens, some school designers say, should not be placed directly facing a window or directly away from it.

If light from the window comes over the computer user's shoulder and hits a screen facing the window, it will create uncomfortable glare. If the screen is facing away from the window, the background light from the window could be brighter than the screen, and that causes visual disturbances as well. Instead, computers should be placed at an angle with windows so that bright rays of light hit neither the computer screens nor the users' eyes directly.

Despite what ergonomists and facility planners know about how classrooms should be furnished, arranged, and lighted, school officials frequently do not take this knowledge into account in furnishing classrooms. One stumbling block is money: Ergonomically correct classrooms cost more than traditional ones.

But Shadrin, Skilling, and Day say the investment is worth it: How classrooms are furnished and lighted is an integral ingredient of school reform, affecting teachers' ability to try new ways of teaching, students' working relationships with each other and the teacher, and—most important—how well students learn. ■

Kevin Bushweller *is a senior editor of The American School Board Journal.*

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PH: (419) 636-1194; FAX: (419) 636-2640
Internet: http://www.bardhvac.com

Interior Concepts .... PAGE 15
PH: (800) 678-5550; FAX: (616) 846-3925
Internet: http://www.interiorconcepts.com

Johnson Controls .... PAGE 5
PH: (414) 274-4197; FAX: (414) 274-5030
Internet: http://www.johnsoncontrols.com

Nova Solutions, Inc. .... PAGE 4
PH: (800) 730-6682; FAX: (800) 940-6682
Internet: http://www.novadesk.com

Learning By Design 1999........... PAGE 6
PH: (800) 950-6722; FAX: (703) 683-7590
Internet: http://www.nsba.org

O'Brien Kreitzburg .... PAGE 13
PH: (415) 281-2664; E-Mail: info@okpcm.com

Rauland-Borg Corp .... BACK COVER
PH: (800) 752-7725; FAX: (573) 886-5408
Internet: http://www.simplexnet.com

Semco, Inc....................... PAGE 21
PH: (888) 4-SEMCOINC; FAX: (573) 886-5408
Internet: http://www.semcoinc.com

Simplex .... PAGE 7
PH: (800) SIMPLEX
Internet: http://www.simplexnet.org

Southern Forest Products Assn...... PAGE 23
PH: (504) 443-4464; FAX: (504) 443-6612
Internet: http://www.sfpa.org

Steed-Hammond-Paul, Inc. .... INSIDE FRONT COVER
PH: (513) 381-2112; FAX: (513) 381-5121
Internet: http://www.shpinc.com

The Trane Company .... BETWEEN PAGES 16 AND 17
PH: (608) 787-3990; FAX: (608) 787-3355
Internet: http://www.trane.com

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ELEMENTARY SCHOOLS
NEW CONSTRUCTION

KKE Architects

300 First Avenue North
Minneapolis, MN 55401

Ronald C. Erickson, AIA
(612) 339-4200

Design team

Brian J. Fitzgerald
Todd Messerli
Project Managers

Kevin Wm. Halbach, AIA
CEFPI Planner

John W. Gould, AIA
Project Designer

Roxanne DeCoster, CID
Interior Designer

Douglas C. Lingren, CCS
Project Specifications

Roland W. Swenson, AIA
Debra Waitzman

Client

Albany Area Schools, ISD #745
(320) 845-2171

Grade span
Pre-K-6

Current building capacity
500 each (classrooms)
700 each (core facilities)

Current building area
62,000 square feet each

Total project costs
$4.3 million each

Cost per square foot
$70

Space per student
124 square feet

Cost per student
$8,600

Completion date
July 1996

Prototype for Albany and Avon Elementary Schools Albany, Minnesota and Avon, Minnesota

KKE Architects

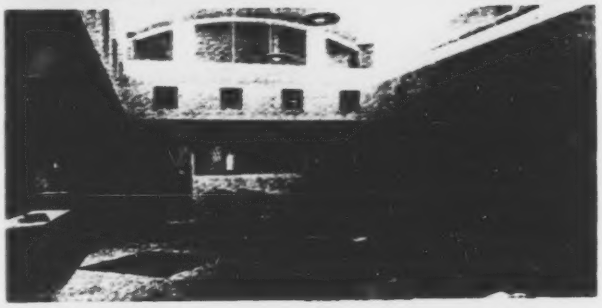
The Albany Area School District was challenged with replacing outdated facilities and providing for growth while conforming to tight budget constraints. KKE's creative solution was to develop a prototype elementary school to accommodate the needs of two different communities within this district. The design's efficiency and its use for two facilities allowed the District to realize considerable financial savings in design and construction. Responses to differences in program were accommodated without impacting the base building design.

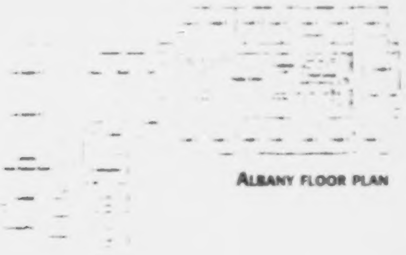
Research and extensive planning were conducted in tandem with community groups and educational planning committees through all phases of the project. A number of challenges related to functionality and design were identified. The Albany facility houses the District's E.C.F.E. and E.C.S.E. programs, and it shares athletic facilities with the junior/senior high school. The Avon facility differs by needing to serve a larger and faster-growing student population.

Designed as a three-section, K-6 elementary school, the core facility was sized to allow for planned expansion to four sections. Classrooms are grouped in houses surrounding the media center and other shared programmatic functions. The classrooms for each grade level are organized around a shared resource area to provide appropriate, yet flexible, learning environments that are sensitive to human scale. This organization creates opportunities for team teaching and other alternative education methods, as well as providing natural settings for parent conferences and individual or small group work.

KKE took full advantage of color and floor patterns to create a sense of scale and an inviting atmosphere that encourages learning. An innovative combination of masonry, drywall, and operable wall systems allowed the project to remain under budget, while offering the flexibility required by changing educational programs and student populations. ■

AVON MAIN ENTRY


AVON MEDIA CENTER


ALBANY FLOOR PLAN

ALBANY CLASSROOM BREAKOUT SPACE

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Jeter, Cook & Jepson Architects, Inc.

450 Church Street
Hartford, CT 06103

James E. LaPosta Jr., AIA
(860) 247-9226

Design team

David G. Jepson, AIA
Principal-in-Charge

James E. LaPosta Jr., AIA
Design Architect

Bruce Kellogg
Project Manager

Robert Andrade, AIA
Job Captain

James Hoagland
Designer

Janis Newell
Interior Designer

Client

Town of Enfield Public Schools
(860) 253-6500

Grade span
K-6

Current building capacity
600

Current building area
55,000 square feet

Building area before addition/renovation
30,000 square feet

Total project costs
$4.6 million

Cost per square foot
$75

Space per student
92 square feet

Cost per student
$7,650

Completion date
August 1994

Thomas G. Alcorn Elementary School
Enfield, Connecticut

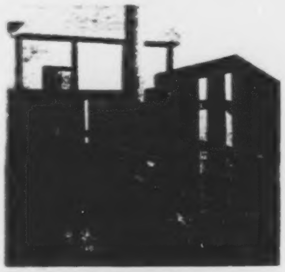
Jeter, Cook & Jepson Architects, Inc.

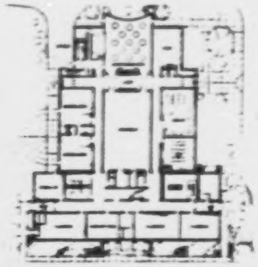
The challenge of this project was to transform a 1920s-era public high school into an exciting and appropriate learning environment for elementary school children. An earlier proposal to raze the building and replace it with a new school had been defeated due in part to the building's role as a neighborhood landmark.

To correct issues involving internal circulation, access for the disabled, and necessary floor area, the utilitarian rear wing of the original school was demolished and replaced with an addition that recalled its mass. This addition transformed the former basement level of the school into areas for kindergarten and first-grade classrooms, as well as major core areas. The addition also provided new student entries, recognizing that most students walked from the surrounding neighborhood and did not enter through the original front door. Demolition also allowed the creation of a sculptural central stair to provide the physical and psychological center lacking in the original school.

Exposed structural and mechanical elements transform the building itself into a teaching tool and respond to the tactile nature of elementary-age learning. The exterior of the addition reinterprets the masonry facade of the original building in a mix of brick, cast stone, and exposed structural steel. ■

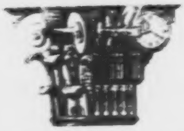
NEW STUDENT ENTRY LOBBY WITH MULTI-PURPOSE ROOM TO RIGHT AND GYM TO LEFT


DETAIL OF CENTRAL STAIR


SITE AND FIRST FLOOR PLAN

NEW STUDENT ENTRY

NEW LIBRARY



ELEMENTARY SCHOOLS
PROJECT IN PROGRESS

SSOE Studios

1001 Madison Ave
Toledo, OH 43624

Joseph Kunkle, AIA, PE
(419) 255-3838

Design team

John Luscombe, AIA
Principal-in-Charge

Joseph Kunkle, AIA, PE
Project Manager

Kirk Keaffaber, AIA
Project Architect

Lance Mushung, AIA
Architect

Mike Thompson
Mechanical

Steve Wheeler
Electrical

Mike Burkholder, PE
Structural

Jeff Myers
Civil

Stephanie Glinka
Interiors

Client

Archbold Area Local Schools
(419) 455-5579

Grade span
K-4

Current building capacity
675

Current building area
67,200 square feet

Total project costs
$6.3 million

Cost per square foot
$94

Space per student
100 square feet

Cost per student
$9,374

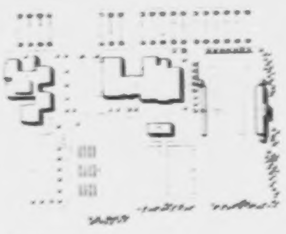
Completion date
November 1997

Archbold Elementary School
Archbold, Ohio

SSOE Studios

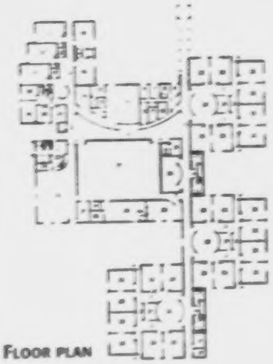
The Archbold K-4 school is a 67,200-square-foot facility designed to serve 675 students in a unique state-of-the-art teaching environment. This facility was the result of a thorough district-wide planning effort with the goal of making this capital improvement an investment that will truly serve the long-term education needs of the community.

Solutions recognized the balance between the different district buildings. It was determined that the overall strategic plan should incorporate a "contingency approach" that would allow for expansion.



SITE PLAN

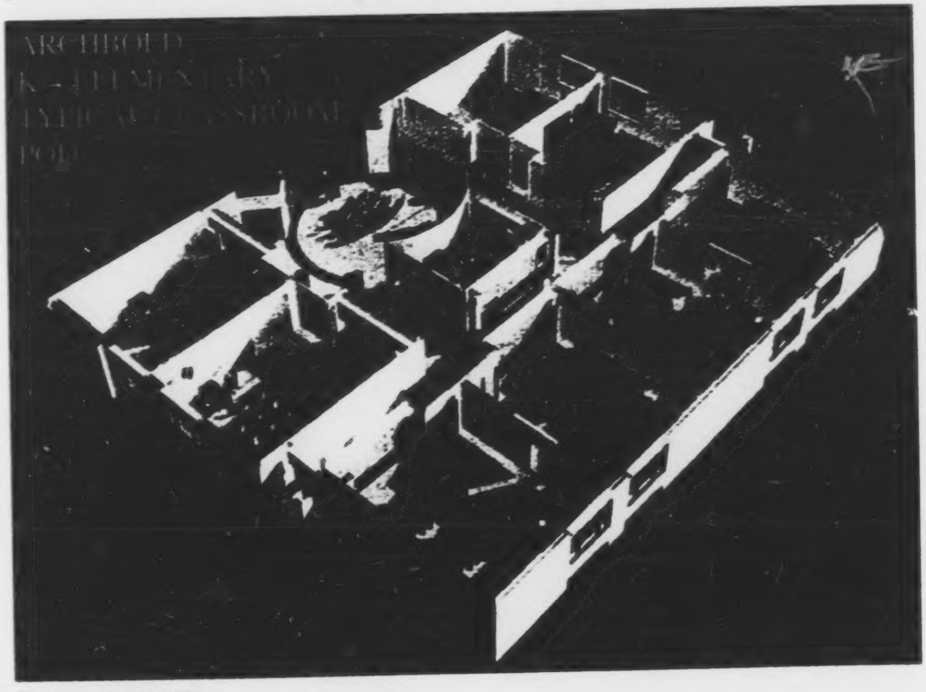
This was inherent in the resulting "pod" solution, which allows accommodation for 150 to 200 students per grade level in the future by adding just one pod.



FLOOR PLAN

The design objectives embraced the ability to adapt to different teaching styles. Three pods, each containing eight classrooms, along with a special-education classroom and kindergarten pod, accommodate the student population. The pod/classroom layout allows teaching in self-contained traditional classrooms, team teaching within pairs of classrooms, and even a "connections" program (grades one through four in the same pod). Each pod also has shared spaces, including storage and work areas.

The facility also served the technology objectives with distributed data wiring (category 5 and fiber) along with coax for a truly state-of-the-art facility. ■



TYPICAL CLASSROOM POD

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Einhorn Yaffee Prescott

Broadway at Beaver Street
P.O. Box 617
Albany, NY 12201
John Sobiecki, AIA
(518) 431-3300

Design team

Steven Einhorn, FAIA
Principal-in-Charge
John Sobiecki, AIA
Project Manager
Robert Lopez, AIA
Project Architect
Daniel LaBreck
Mechanical Engineer
John Hall
Electrical Engineer
Joseph Volpe
Plumbing Engineer
Grazyna Szymborski
Interior Design
Robin Styles-Lopez, SEGD
Graphic Design

Client

Little Falls City School District
(315) 823-1470

Grade span
K-5

Current building capacity
700

Current building area
110,000 square feet

Building area before addition/renovation
110,000 square feet

Total project costs
$10.7 million

Cost per square foot
$97

Space per student
157 square feet

Cost per student
$15,286

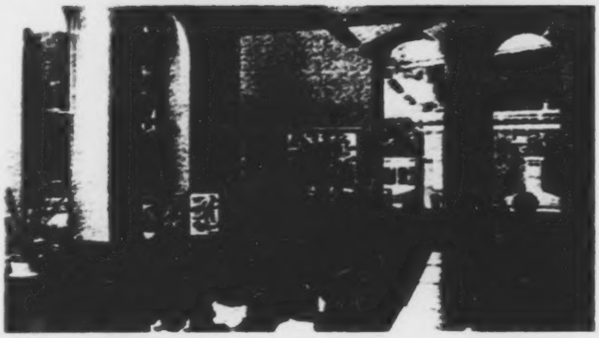
Completion date
July 1997

Benton Hall Academy
Little Falls, New York

Einhorn Yaffee Prescott

The city of Little Falls, N.Y., set out to create a K-5 school for the 21st century. Along the way, the city rediscovered an old friend. Benton Hall Academy, designed by noted architect Archimedes Russell, sits at the heart of the city, overlooking the park. It was constructed in 1895, with additions in 1898 and 1929. To renovate the 110,000-square-foot structure, which had been partially abandoned, would cost $12.3 million. To build a new, 85,000-square-foot school would cost $13.3 million.

EXTERIOR

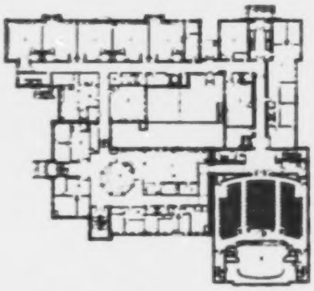


INTERIOR

The community chose to restore Benton Hall, creating a new school within the armature of a landmark. A new structural-steel system had to be inserted. The delicate procedure of inserting a temporary structural frame and then demolishing the interior walls was carried out with ingenuity and careful planning. This cleared the way, on the inside, for a state-of-the-art school. New entry pods in a colorful scheme playfully identify classroom doorways. Spacious classrooms feature high ceilings and large historic window openings. Support spaces (including a cafeteria, an 8,650-square-foot gymnasium, a 2,500-square-foot computerized library, and an auditorium) were designed to encourage use by community groups. New mechanical and lighting systems are controlled by a computerized energy management system. The new electrical design includes a master television system with wiring for telephone and data transmission to each classroom.

On the outside, as the masonry facades, slate roof, and cupolas were restored, the building was reestablished as the symbolic center of the community. Working closely with the city, a portion of the street that separated the school from the park was closed. A new pedestrian plaza joins the school with the park, which has a new playground and a gazebo.

As Little Falls business manager Clete McLaughlin said, "Even though I was born and raised here, I have under estimated the extremely strong bond the community has with this building." ■



FIRST FLOOR PLAN

AUDITORIUM

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Brown Reynolds Watford Architects

3535 Travis Street, Suite 250
Dallas, TX 75204

Craig Reynolds, AIA
(214) 528-8704

Design team

Craig Reynolds, AIA
Principal-in-Charge

Lisa Lamkin, AIA
Project Manager

David Pierce, AIA
Project Architect

Brian Fitzsimmons
Robert Ting
Melissa Creeson

Jeff Choyce
Construction Administrator

Client

Mansfield Independent School District
(817) 473-5600

Grade span
K-6

Current building capacity
800

Current building area
75,600 square feet

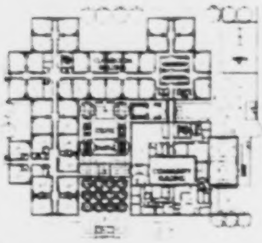
Total project costs
$4.8 million

Cost per square foot
$63

Space per student
95 square feet

Cost per student
$6,000

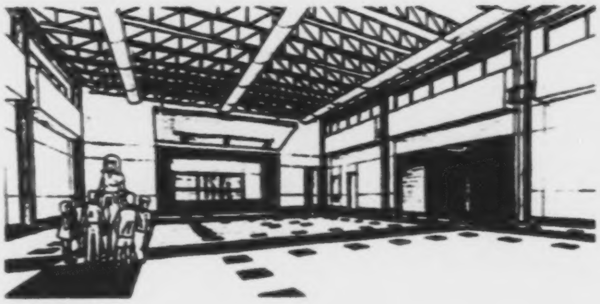
Completion date
April 1998



FLOOR PLAN

Willie Brown Elementary School Mansfield, Texas

Brown Reynolds Watford Architects

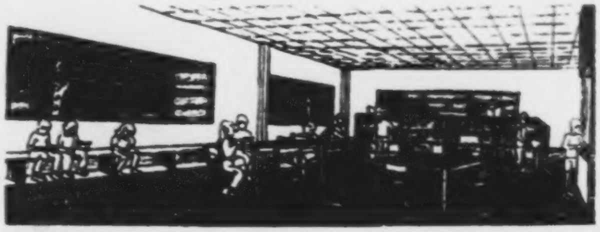


CAFETORIUM

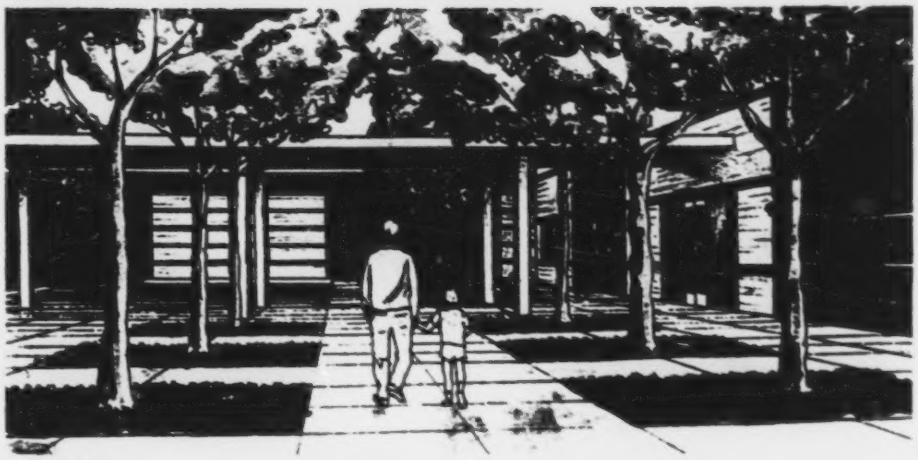
This new prototypical elementary school for the rapidly growing Mansfield Independent School District (MISD) was designed to provide flexibility and expansion options for the district. The early concepts were developed in conjunction with a community team representing MISD. The design team developed a simple square organizational concept that distinguished the instructional wing from the administrative and public areas. This layout provides a common multipurpose protected courtyard learning environment that will also allow light into all instructional areas. In addition, it will be possible for the public and administrative areas to be operational at all times of the year without opening the entire school.

The prototypical plan was then adapted to two initial sites. The simplicity of the building plan allowed similar site organization strategies at each of the two very different sites. Unique brick colors and patterns and site conditions distinguish each school.

The initial school will serve as a state-of-the-art elementary school. Willie Brown Elementary School will be equipped with a fully integrated computer workstation in each classroom, two computer labs, recreational facilities, traditional and improvisational instruction and learning spaces, public gathering and performance areas, and food service facilities serving 300 students at a time. This school was designed to meet the needs of the school district and the community of Mansfield well into the next century. ■



LIBRARY



ENTRY COURTYARD

387

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1998
CITATION
AWARD
WINNER
LEARNING BY DESIGN

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

HMFH Architects, Inc.

130 Bishop Allen Drive
Cambridge, MA 02139

Susan Elmore
(617) 492-2200

Design team

John F. Miller, FAIA
Principal-in-Charge

Stephen Friedlaender, FAIA
Planning/Design Principal

Mario Torroella, AIA
Design Director

Robert Juusola, AIA
Project Manager

Arthur Duffy, RA
Project Architect

Vassilios Valaes
Ronald Lamarre
Architects

Client

Chelsea Public Schools
(617) 889-8415

Grade span
1-5

Current building capacity
2,200

Current building area
253,000 square feet

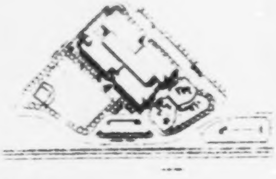
Total project costs
$34.2 million

Cost per square foot
$135

Space per student
115 square feet

Cost per student
$15,534

Completion date
September 1996



SITE PLAN

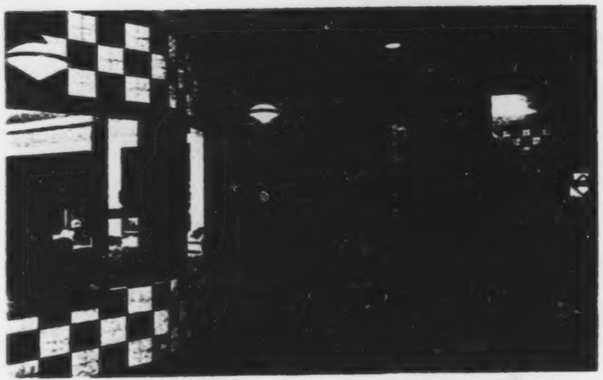
Mary C. Burke Elementary School Complex Chelsea, Massachusetts

HMFH Architects, Inc.

This elementary school is, in reality, a complex of four schoolhouses that house the city's entire first- through fifth-grade population of 2,200 students under one roof.

Located on a 10-acre site, the complex comprises four autonomous administrative units that successfully share core facilities and outdoor play space. Each three-story schoolhouse has its own public entrance and administrative areas; 22 technology-rich classrooms; dedicated computer, multipurpose, and skylit art classrooms; and a community room. Pairs of schools share a cafeteria and a gymnasium, health and music suites, and a special-education classroom. All four schools share the third-floor library.

Each school is distinguished from its neighbors by bright, distinctive colors and geometric patterns repeated in exterior and interior details, humanizing the scale of the building for its young users.



ENTRY LOBBY

LIBRARY

The complex's playfulness extends outdoors where interpretive play structures echo Chelsea's history as a seaport.

The ultimate success of Chelsea's groundbreaking decision to locate 2,200 elementary school students on a single, 10-acre parcel will be watched closely by educators and politicians, as well as architects, all of whom struggle daily to reconcile the advantages of small schools with the realities of limited construction funds and limited construction sites serving inner-city neighborhoods. ■

OVERALL VIEW

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Ricciuti Balog & Partners

1500 Metropolitan Tower
Youngstown, OH 44503

Paul J. Ricciuti, FAIA
(330) 744-4401

Design team

Paul J. Ricciuti, FAIA
Principal, Planning & Design

Gary G. Balog, AIA
Principal, Design

Brett Hendricks, AIA
Project Architect

Client

Wooster City Schools
(330) 264-0869

Grade span
K-6

Current building capacity
550

Current building area
65,000 square feet

Total project costs
$4.7 million

Cost per square foot
$72

Space per student
118 square feet

Cost per student
$8,500

Completion date
August 1996

Cornerstone Elementary School Wooster, Ohio

Ricciuti Balog & Partners

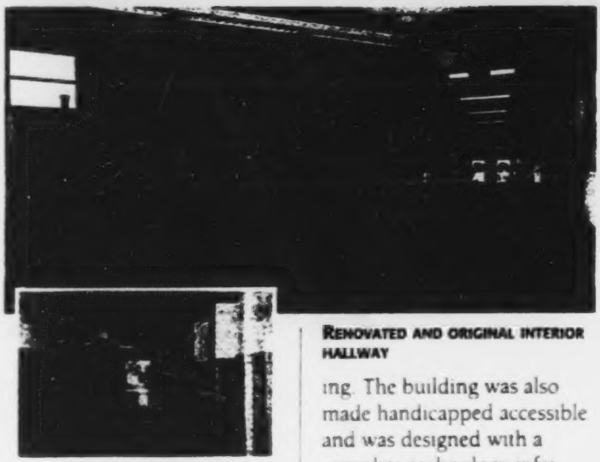
Cornerstone Elementary School, the adaptive reuse of the original Wooster High School (c.1920), is a result of a commitment of the Wooster community to establish an effective use for a historic building. When a new high school opened, the historic school, located downtown, was boarded up and mothballed.

The school consisted of eight different construction phases from 1908 to 1970 and contained 205,000 square feet. The parti centered on the demolition of 80,000 square feet of unusable structure, 15,000 square feet reserved for future classrooms, and 65,000 square feet renovated and restored.

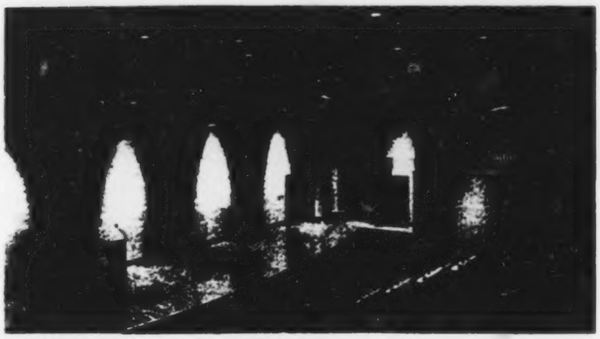
The adaptive reuse of existing spaces focused on three items:

- the redesign of three high school classrooms into two, 1,200-square-foot elementary classrooms;
- the redesign of the auditorium/gym into a library/media center, performing arts center, and cafeteria/kitchen; and
- oversized spaces for art, music, and special education.

RENOVATED EXTERIOR



RENOVATED AND ORIGINAL INTERIOR HALLWAY

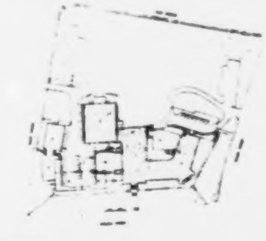


ORIGINAL STAGE, NEW PERFORMANCE CENTER

Classroom grade levels are grouped with kindergarten, first, and second grades on the ground level; third and fourth grades on the first floor; and fifth and sixth on the second floor. Three classrooms for each grade are assigned to each wing of the academic core and include a teachers' planning room and partial movable walls for team teaching.

The academic retrofitting of the building was supplemented by new, historic-style windows; roofs; electrical system; and complete mechanical systems, including air conditioning. The building was also made handicapped accessible and was designed with a complete technology infrastructure.

When appropriate in the renovation, important historic detailing of walls and ceilings were uncovered and restored to its original splendor. ■



SITE PLAN

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.

540 E. Market Street, P.O. Box 71
Celina, OH 45822
(419) 586-7771

Design team

Ronald H. Fanning, AIA
Principal-in-Charge

Vonda M. Alberson, AIA
Project Manager

Rodney D. Wiford
Michael W. Miller
Project Coordinators

Jonathan W. Miller, PE
Structural Engineer

James P. Tolan
Thomas M. Avery
Plumbing Systems Designers

Terrance R. Liette, PE
Mechanical Engineer

Timothy C. Lehman, EIT
David D. Jones
Mechanical Designers

Craig A. Stammen
Eric J. Baltzell, EIT
Electrical Designers

James R. Pearcy Jr.
Construction Administrator

Client

Kings Local School District
(513) 459-2900

Grade span
5-6

Current building capacity
650

Current building area
96,659 sq. feet

Total project costs
$10.1 million

Cost per square foot
$90

Space per student
148 square feet

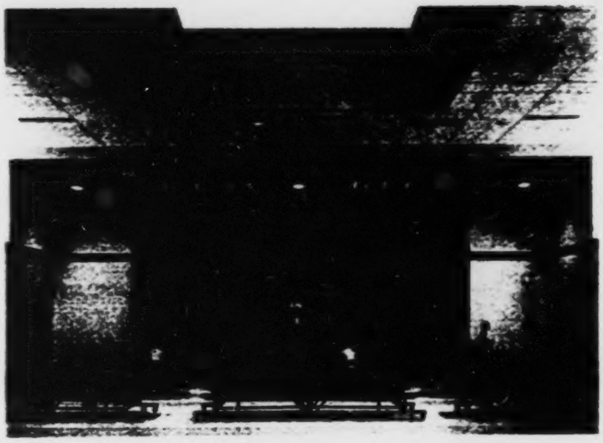
Cost per student
$15,481

Completion date
August 1997

Columbia Elementary School Kings Mills, Ohio

Fanning/Howey Associates, Inc.

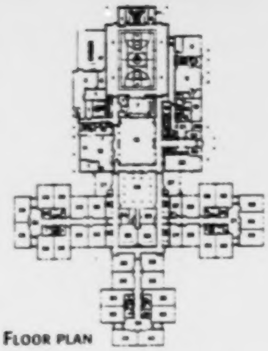
The design of this elementary school responds to the vision of the school community, staff, and administration by providing a facility that will bring together 650 fifth- and sixth-grade students from diverse communities within the school district in a user-friendly and technology-rich educational environment. This 96,659-square-foot elementary school was designed to support an increasingly interactive curriculum to meet the educational needs of the district's fifth and sixth graders. A new grade configuration throughout the school district was also initiated with the opening of this building, reducing overcrowding in the three existing elementary schools.



THE SKYLIT STUDENT DINING SPACE IS MULTIFUNCTIONAL AND IS ALSO USED FOR LARGE GROUP INSTRUCTION OR PERFORMANCES.

Located on a 22-acre site bordering existing residential and commercial areas, site development included access and parking for 14 buses and 120 cars, a multipurpose soccer/football field, softball field, and space for future field development. Limited to a single-site access point by the county, the access drive splits to create parent drop-off and visitor parking near the main entrance, and a separate area for bus parking. This allows students to move directly into their classroom wings. A county sanitary line running lengthwise through the center of the site created further constraints for site development and building design.

MEDIA CENTER



FLOOR PLAN

The building design was initially developed from a programmatic requirement to centralize the media center and computer labs to promote their use and provide easy access for all students. The media center is an inviting space for quiet reading or computer access for research. The media center and computer labs became the hub of the design where the three classroom wings intersect. Each classroom wing accommodates two teams in its nine or 10 classrooms, extended learning area, and small group instruction/tutor room. Each team also has a classroom designed to support hands-on science instruction with additional sinks, casework, student tables, and computers. An operable wall

390

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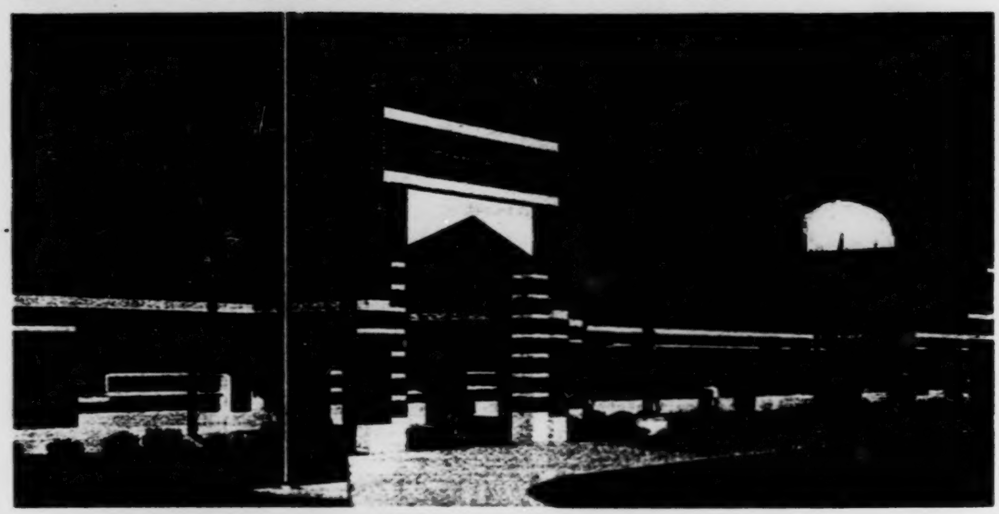


MASONRY AND SLOPED ROOFS WERE UTILIZED TO COMPLEMENT THE ADJACENT RESIDENTIAL NEIGHBORHOODS.

THE SCIENCE ROOMS (ABOVE) ARE DESIGNED TO PROMOTE A VARIETY OF HANDS-ON ACTIVITIES. ENTRANCE TO ADMINISTRATIVE OFFICE (LEFT).

between two classrooms in each wing provides a convenient venue for large group instruction. Art, music, and special-education spaces are spacious and well-lit with direct access to the outside.

The cafeteria/commons space, located on axis with the front entrance and the media center, was designed as a large, multipurpose, skylit space that can be utilized for large group instruction. Student events and performances are enhanced by the design of the stage, located between the cafeteria/commons and the gymnasium. The stage can be opened to either the cafeteria/commons or gym, depending on the size of the group. The operable walls on each side of the stage also allow this space to be used as an additional teaching station.

To accommodate increasing gym, athletic, and community use, a gymnasium large enough for two full-size basketball courts was a programmatic requirement. Portable, telescoping bleachers facilitate seating orientation toward the main basketball court or toward the stage, providing additional flexibility. The gymnasium is also designed to be available for before- and after-school activities without opening the balance of the building.

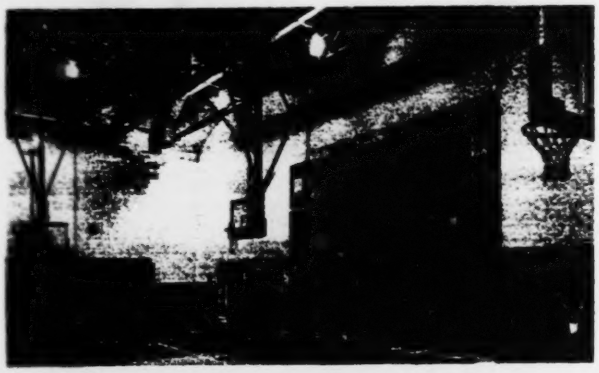
The building is constructed of exterior masonry bearing walls with a steel structure at the interior and roof. The sloped metal roof forms, windows, and the brick and split face block exterior were designed to complement the scale and materials of the adjacent residential neighborhoods.

Data network cabling is provided in each typical teaching space for a minimum of five student computers, plus a teacher station. Two tiered computer labs, adjacent to the media center, are available for individual or class use. A media retrieval system provides each teaching station with access to videotapes, media center database, laser discs, and video announcements and paging. A video projection system in the cafeteria/commons can be used with a large projection screen for presentations to a team or an entire grade level.

The main building areas are conditioned using a medium-pressure, variable-volume duct system utilizing fan-powered reheat terminals at each classroom space to maximize user comfort. The central heating water plant uses natural gas-fired boilers connected to a pumping system distributing 200-degree water throughout the building.

Primary cooling/ventilating air is distributed from a central chilled water cooling plant. This plant is an ice-storage system that includes outdoor reciprocating water chillers and ice-storage tanks, resulting in a cooling system that reduces electrical demand and operating costs. The local power utility participated in the cost of the ice-storage system through cash rebates paid directly to the school district.

The mechanical system for the building is divided into primary areas of HVAC control to coordinate with the building design. The temperature control system is a complete DDC electronic control system having computer-based unitary controllers for the majority of the HVAC equipment. The entire system can be monitored from the school's central maintenance facility. ■



THE GYMNASIUM IS DESIGNED TO ACCOMMODATE BOTH SCHOOL AND COMMUNITY ACTIVITIES.

BEST COPY AVAILABLE

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

HMFH Architects, Inc.

130 Bishop Allen Drive
Cambridge, MA 02139

Susan Elmore
(617) 492-2200

Design team

Stephen Friedlaender, FAIA
Principal-in-Charge

Mario Torroella, AIA
Design Director

Richard Oja, AIA
Project Manager

Paul Shelander, RA
Project Architect

Richard Nelson
Burt Barachowitz
Roger Tuttle
Architects

Client

Nauset Regional School District
(508) 255-8800

Grade span
K-5

Current building capacity
450

Current building area
57,915 square feet

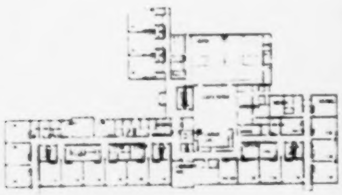
Total project costs
$7.1 million

Cost per square foot
$123

Space per student
128 square feet

Cost per student
$15,768

Completion date
January 1997



FLOOR PLAN

Eddy Elementary School Brewster, Massachusetts

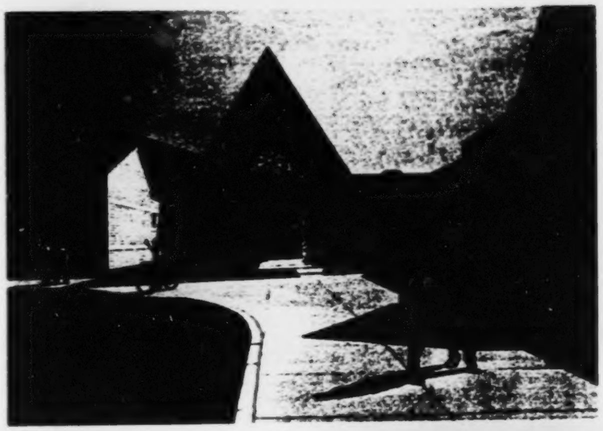
HMFH Architects, Inc.

The Eddy Elementary School is a sister school to Brewster's existing elementary facility, which was designed by HMFH in 1976. The new, gabled, wood-shingled school follows aesthetically in the tradition of the older school by being scaled to its young occupants, sensitive to its immediate surroundings—the Old King's Highway Historic District, a scenic main street lined with antique shops—and a reflection of its regional, Cape Cod heritage.

Designing appropriate access to the site was a challenge because it is surrounded by wetlands, and entering from its limited street frontage involves crossing a narrow, protected wetland area. HMFH's solution was to install a prefabricated, precast concrete bridge over the wetland crossing.

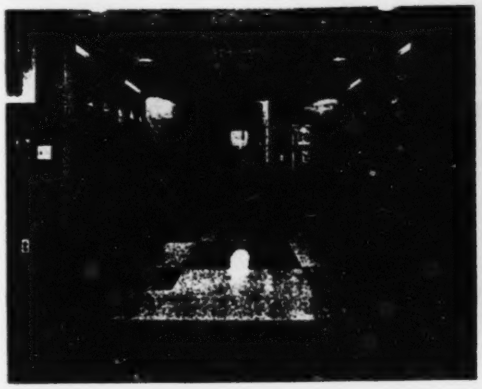
Conceptually, the school's single-story design strives for simplicity of circulation using a modified T-shape plan. The cross of the T is a double-loaded classroom wing with all 18 standard classrooms facing south, east, or west, honoring a specific request that no classrooms face north. The building is designed for community use, featuring a large cafeteria with a raised platform and a full-size gymnasium accessible by a separate public entrance.

The school includes a music suite, art room, library, special-use classrooms, teacher work rooms, a computer lab, and technology control room. The systems include a state-of-the-art technology network for the elementary school level with a fully integrated voice/video/data system. ■



MAIN ENTRANCE

KINDERGARTEN CLASSROOM



CORRIDOR

LIBRARY

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

The Ray Group Inc.

127 E. Orange Street
Lancaster, PA 17602

Rena C. Grimmer
(717) 392-6502

Design team

Michael R. Patton, AIA
Project Director

Bonnie M. Sowers, AIA
Project Manager

Donald D. Searle, AIA
Project Architect

Richard H. Krumrine
Project Designer

Client

Perkiomen Valley School District
(610) 489-8506

Grade span
K-5

Current building capacity
825

Current building area
84,531 square feet

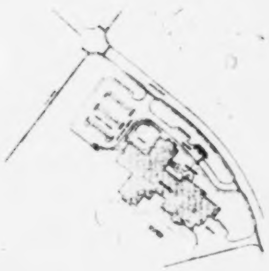
Total project costs
$9.1 million

Cost per square foot
$108

Space per student
103 square feet

Cost per student
$11,061

Completion date
August 1996

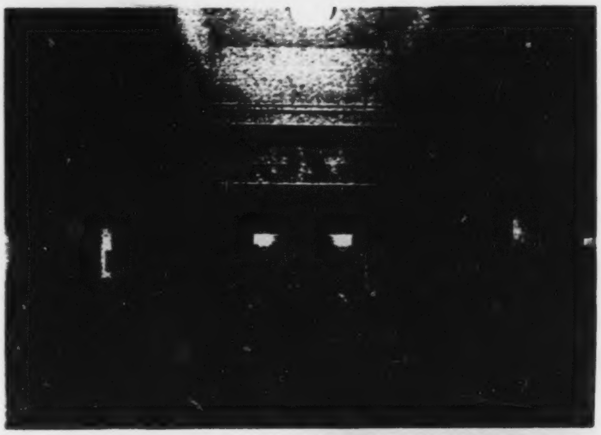


SITE PLAN

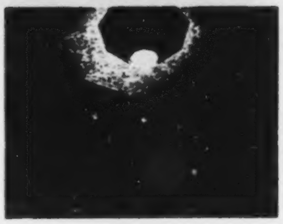
Evergreen Elementary School
Collegeville, Pennsylvania

The Ray Group Inc.

The Perkiomen Valley School District constructed this new elementary school as a replacement facility for an existing building that was too small and difficult to expand. This project—an emotional and physical relocation of the school to the district's existing high school campus—is a two-story facility intended to conserve existing recreational field spaces nearby. A shingled, domestic-style roof was used to blend the building with the surrounding residential neighborhoods. The name of the school derives from an evergreen tree farm that was displaced when the campus was expanded to accommodate the project. In an attempt to respond to this aspect of the site, the entire building was designed around the conceptual theme of "nature." This idea is most simply realized in the exterior masonry veneer, which is colored to match the earth at the site.

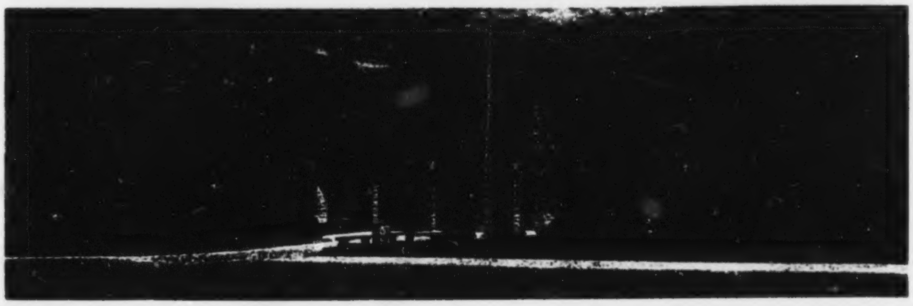


OFFICE/GYMNASIUM LOBBY



IMAGINARIUM

The building branches out from a central space on each level with three and four wings. Each wing supports a motif of nature while providing a separate identity for the grade level it contains. A computer room and media center form the core of the first, or primary, level with symbols of the earth represented by fern, hyacinth, and oak leaf decorative plaques and signage at corridor intersections and entries. On the second level, which accommodates third through fifth grades, water and sky elements are represented, culminating in the Imaginarium. This domed space contains a commissioned ceiling mural that will begin a program of interior decoration customized by the students themselves to reinforce the building's image. The main lobby and multiuse cafetorium further enhance this approach with deep green hues and ivy medallions. The school motto, inscribed over the entry, is by Ralph Waldo Emerson and reads, "Nature and books belong to the eyes that see them." The student attending Evergreen Elementary School thus becomes a symbiotic part of not only the educational curriculum, but also of the spirit of the architecture. ■



EXTERIOR

393

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Wakely Associates
Mt. Pleasant, Inc.

131 S. Main Street
Mt. Pleasant, MI 48858

John P. Jensen, AIA
(517) 773-9945

Design team

John P. Jensen, AIA
Principal/Designer

Harold M. Boog, AIA
Project Manager, Vowles

William S. Gallaher, AIA
Project Manager, Fancher/Kinney

Earl G. Hartman, PE
Mechanical Engineer

Dion P. Dixon, PE
Electrical Engineer

Client

Mt. Pleasant Public Schools
(517) 775-2300

Grade span
K-6

Current building capacity
Fancher, 352; Kinney, 322;
Vowles, 352

Current building area
Fancher, 41,940 square feet;
Kinney, 34,335 square feet;
Vowles, 38,390 square feet

Building area before
addition/renovation
Fancher, 20,280 square feet;
Kinney, 19,255 square feet;
Vowles, 23,890 square feet

Total project costs
Fancher, $2.7 million; Kinney, $2.1
million; Vowles, $2.0 million

Cost per square foot
Fancher, $64; Kinney, $62;
Vowles, $52

Space per student
Fancher, 119 square feet;
Kinney, 107 square feet;
Vowles, 109 square feet

Cost per student
Fancher, $7,651; Kinney, $6,562;
Vowles, $5,616

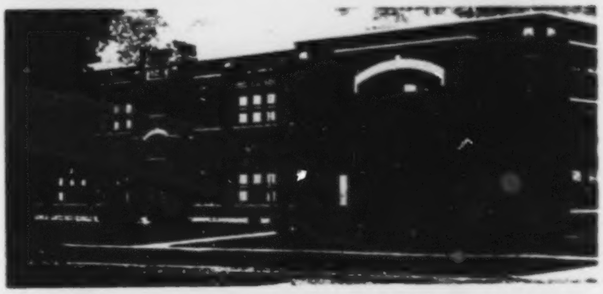
Completion date
September 1996

Fancher Elementary School, Kinney Elementary School, and Vowles Elementary School Mt. Pleasant, Michigan

Wakely Associates Mt. Pleasant, Inc.

DALE WITEK PHOTOGRAPHY

FANCHER—EXISTING BUILDING ON THE LEFT; NEW BUILDING ON THE RIGHT



KINNEY—EXISTING SCHOOL ON THE LEFT; NEW TWO-STORY WING ON THE RIGHT

VOWLES—NEW MEDIA CENTER FACADE BLENDS WITH THE EXISTING AESTHETICS.

In early 1994, district voters approved an extensive renovation and expansion project for all seven existing elementary schools in the district and funding for technology systems in all of the district's buildings. Six elementary schools remained in session during construction: Rosebush, Pullen, Vowles, Ganiard, Fancher, and Mary McGuire. One, Kinney Elementary School, was reopened after closing 12 years earlier.

Each elementary school received major remodeling and additions, including new mechanical/electrical and life safety systems. Technology components were incorporated throughout the schools, within classrooms as well as in media centers and labs.

Three vintage elementary schools (Kinney, Fancher, and Ganiard) required attention to historic design. This included matching and enhancing historical facades as well as updating accessibility requirements in single- and multistory settings. The building sites were quite small and located in existing residential neighborhoods. Each design required sensitivity to its surroundings through the use of scale, landscape, and continuity of materials and detail.

All buildings were expanded and renovated to accomplish four district goals:

1. Adequate housing for enrollments.
2. Improvement of elementary school programs; i.e., classroom space, staff planning space, media, art/music, physical education, performance, and cafeteria;
3. Equity of facilities between all schools; and
4. Technology integration into the elementary curriculum. ■

THE VOWLES ELEMENTARY SCHOOL—NEW MEDIA CENTER

THE FANCHER ELEMENTARY SCHOOL GYM—STAGE PARTITION WALL OPENS TO MUSIC AREA BEYOND.

THE KINNEY ELEMENTARY SCHOOL—DESIGN INCORPORATES HISTORIC EXISTING BUILDING COMPONENTS IN THE INTERIOR.

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Cooper Carry, Inc.

112 South Alfred Street, Suite 200
Alexandria, VA 22314

David Kitchens
(703) 519-6152

Design team

Kevin Cantley
Principal

David Kitchens
Project Manager

Chris Wilson
Project Architect

Client

Montgomery County Public Schools
(301) 279-3157

Grade span
K-7

Current building capacity
650

FLOOR PLAN

Current building area
69,000 square feet

Total project costs
$6 million

Cost per square foot
$87

Space per student
106 square feet

Cost per student
$9,000

Completion date
January 1994

Forest Knolls Elementary School Silver Spring, Maryland

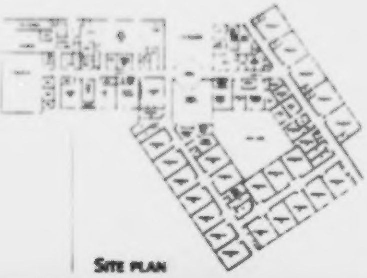
Cooper Carry, Inc.

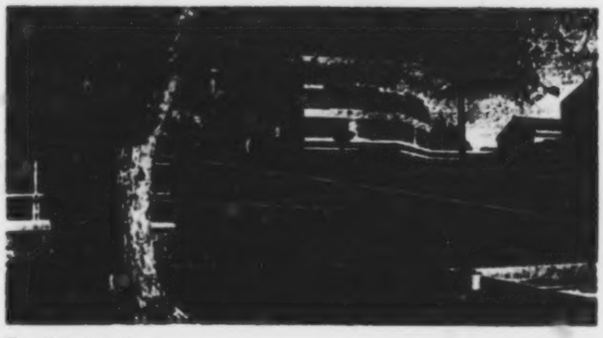
The focus of this 69,000-square-foot elementary school for 650 students is the Communication Arts Magnet Program, featured along the school's two-story main street gallery, which extends in two directions from the main arrival rotunda. Specialty spaces are featured and showcase art, music, fine arts, a computer center, and a communications center with a video recording and production studio. The architecture's volume is uplifting, as well as subtle, providing a bright space to display student work.

A courtyard serves as the identifiable center of the newly completed school. The building is placed on a tight site, replacing a 30-year-old facility. Exterior materials and forms reflect the character of the surrounding single-family homes.

HALLWAY

The media center, administration area, and auditorium clustered at the rotunda provide a public gathering space for student and community events. Orthopedically challenged children are mainstreamed with other elementary school children throughout the facility. ■


SITE PLAN


FRONT ENTRANCE

CAFETERIA

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Partners in Design Architects, Inc.

600 52nd Street, Suite 220
Kenosha, WI 53140

Werner H. Brisske, AIA
(414) 652-2800

Design team

Werner H. Brisske, AIA
John E. Setter
Brant T. Muncaster

Muermann Engineering
Electrical Consultants

CS2 Design Group
Mechanical Consultants

Client

Kenosha Unified School District
(414) 653-6300

Grade span
K-5

Current building capacity
550

Current building area
88,000 square feet

Building area before addition/renovation
35,000 square feet

Total project costs
$6.6 million

Cost per square foot
$75

Space per student
160 square feet

Cost per student
$11,964

Completion date
August 1997

Frank Elementary School
Kenosha, Wisconsin

Partners in Design Architects, Inc.

WEST ADDITION WITH ORIGINAL BUILDING TO THE RIGHT

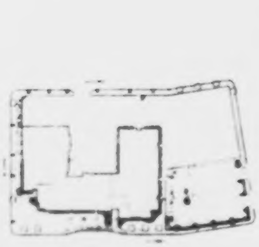
The additions and alterations project for Frank Elementary School consists of three components, which combine to improve a 550-student facility of approximately 88,000 square feet. The three components of the project are:

- Renovation of the existing building, a portion of which dates back to 1895 (with additions in 1897 and 1912), including all new interior finishes, electrical, and mechanical systems;
- One-story addition to the west side of the existing building, which houses a gymnasium, a multipurpose room, a kitchen, and offices and a conference room for school and community use; and,
- Two-story addition to the east side of the existing building, which houses additional classrooms, administrative and guidance offices, and the IMC.

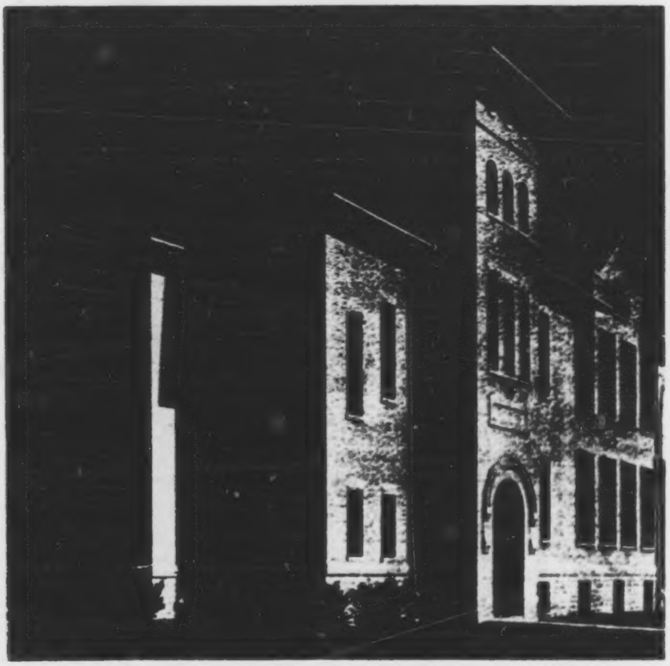
The design and construction challenges faced in this project were numerous:

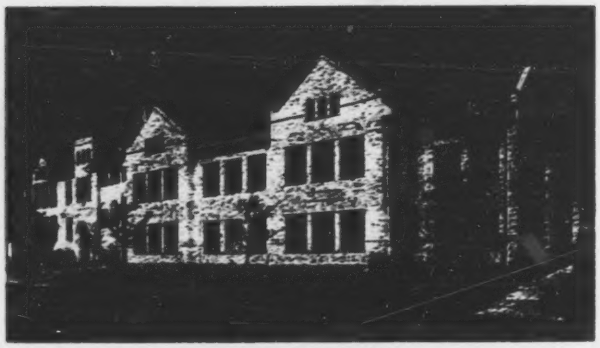
- The original building is a state and locally registered historical landmark whose exterior renovation and additions required special attention. The exterior renovations were based as closely as possible on old photographs of the school. Two dormers on the south elevation, which had been removed as part of a previous renovation, were reconstructed. The additions, which frame the older building, are styled after the original building, but are detailed in such a way as to maintain a distinction between the old and the new. For example, the large double-hung windows in the original building, previously replaced with metal panels for energy reasons, were replaced with new windows with muntins, while the windows in the additions have no muntins.
- The school needed to remain operational throughout the entire construction period. Because of this requirement, the work needed to be phased and closely coordinated with the school's administration. The west addition was built first, allowing the old gymnasium to be demolished to make way for the east addition. Once the east addition was completed, the students and staff moved into this area. Finally, renovation of the existing building was completed. Emergency systems and all exiting requirements had to be maintained throughout the entire construction schedule.
- The project site was very tight and again required close

FIRST-FLOOR CORRIDOR IN ORIGINAL BUILDING



SITE PLAN





EAST ADDITION WITH ORIGINAL BUILDING TO THE LEFT

coordination with the administration to provide the necessary construction staging areas, outdoor play areas, and parking for both the staff and the construction workers. The project also included the purchase and development of an adjacent block and the vacating of the street between the two blocks.

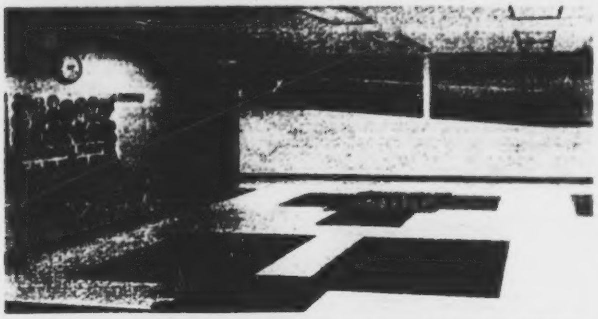
■ The existing building consisted nearly entirely of bearing walls. This fact made reconfiguration of the classrooms, which are generally small by today's standards, nearly impossible. In order to provide additional functional square footage within the classrooms, adjacent spaces were renovated to provide for storage and coatrooms, thus eliminating the impact of these functions on the classroom itself.

■ Security was also a major consideration in the planning of this building. The arrangement of the classrooms and their associated coatrooms also provides additional security for the students' belongings. Each classroom has a coatroom which is located within the classroom's door. No one can access a coatroom without first entering a classroom. Also, the three main first-floor entrances are located so that they can be observed from the main school office. The corridors have been laid out for both building efficiency and to make monitoring of these spaces readily achievable.

■ The existing building was built with its ground and first floors one stair flight below and above the entrance elevation and therefore offered no accessibility to the classroom areas. The additions were both designed with grade-level entrances; a five-stop elevator with front and rear doors was installed to provide accessibility to all levels.

■ The building is designed to act as a community center. The entire west addition is designed for community use during off-school hours. In addition to the gymnasium/multipurpose room and adjacent kitchen, a suite of three offices and a conference room are provided for either school or community use. ■

LIBRARY, LOOKING SOUTHEAST



GYM/MULTIPURPOSE ROOM LOBBY AREA; STAIR AND RAMP TO ORIGINAL BUILDING

GYMNASIUM/MULTIPURPOSE ROOM

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Mitchell and Hugeback Architects

12125 Woodcrest Executive Drive,
Suite 300
St. Louis, MO 63141

Larry Mitchell
(314) 878-3500

Design team

Larry Mitchell
Principal-in-Charge

Brian Zwick
Associate/Project Manager

Lou Henry
Project Architect

Regina Foan
Project Technician, Interiors

Linda Thompson
Architectural Technician, Interiors

Evelyn Fleddermann
Architectural Technician

Client

Wentzville R-IV School District
(314) 327-3800

Grade span
K-5

Current building capacity
600

Current building area
65,000 square feet

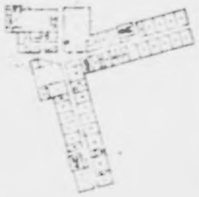
Total project costs
$4.8 million

Cost per square foot
$74

Space per student
108 square feet

Cost per student
$8,000

Completion date
August 1997



FLOOR PLAN

Greentree Elementary School
Lake Saint Louis, Missouri

Mitchell and Hugeback Architects

The Greentree Elementary School program called for a 65,000-square-foot school for 600 students. The design needed to be budget-conscious and provide a high return on the district's investment with a building that used durable, attractive materials.

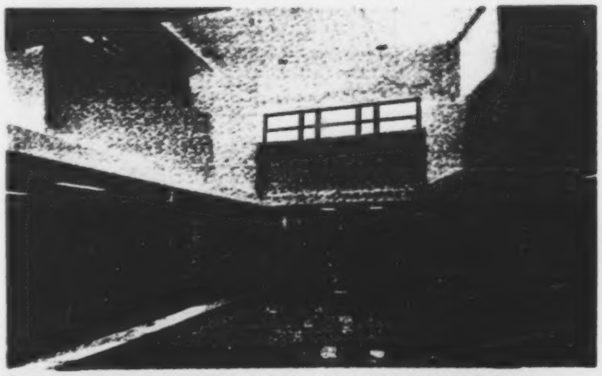
The school's administrators, educators, and staff joined parents in contributing ideas for the overall space program and design of the facility. The spaces were developed and tested to provide maximum flexibility and dual use wherever possible. The multipurpose area, for example, serves as an activity area, community meeting space, and school cafeteria. Likewise, the gymnasium doubles as an auditorium, using as its stage a band/vocal classroom with a movable sound wall.

The primary wing features a separate entry for half-day kindergarten students, who can exit their bus without crossing any bus lanes, and enter directly to their classroom from a common area within the wing.

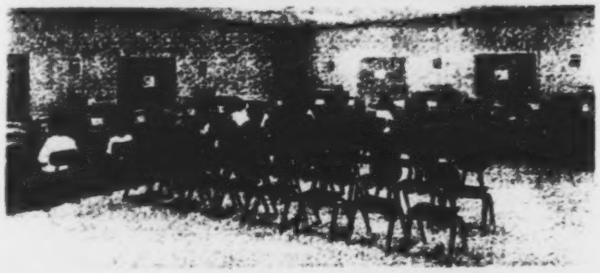
Careful site planning allowed for separated circulation of automobiles, buses, and service vehicles. The 17-acre site also takes advantage of the nearby city park by orienting the play areas near the park border.

Alternating bands of masonry and split-face concrete enclose the building. Classrooms are on a common axis, with the administration, gymnasium, and multipurpose spaces on another axis relating to the site parking and service functions.

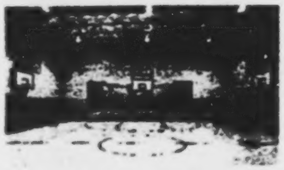
Designed for future technology, the building includes fiber-optic cable for audiovisual and computer enhancements. The mechanical system features an individual room-zoned heat-pump system with boilers for loop water-heating and a cooling tower for loop water-cooling. ■



ANGLED CLERESTORY GLAZING ILLUMINATES THE BUILDING COMMONS.



COMPUTER LAB HAS INDIVIDUAL WORKSTATIONS AND INSTRUCTIONAL SEATING AREAS.



THE STAGE OF THE GYM HAS A SOUND WALL PARTITION TO ALLOW USE OF STAGE AS MUSIC CLASSROOM.

WEST FACADE

CITATION AWARD WINNER

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

TMP Associates, Inc.

1191 W. Square Lake Road
Bloomfield Hills, MI 48302

John J. Castellana, FAIA
(248) 338-4561

Design team

John J. Castellana, FAIA
Principal-in-Charge/Project Designer

Tom Kowalski, AIA
Project Manager

Client

West Bloomfield School District
(248) 738-3555

Grade span
K-2

Current building capacity
300

Current building area
32,500 square feet

Total project costs
$3.9 million

Cost per square foot
$107

Space per student
108 square feet

Cost per student
$13,160

Completion date
August 1995

Gretchko Elementary School West Bloomfield, Michigan

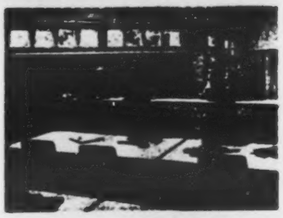
TMP Associates, Inc.

This new elementary school is specifically designed for children in preschool through first grade. Splashed with touches of primary colors, all aspects of the school were crafted to meet the social, physical, and learning needs of the four- to six-year-old child. Special attention was given to creating environments "just for the kids" with lots of special windows (at their level), personal "kid" storage, and a symbolic stair platform at the main entry for imaginative play activities.

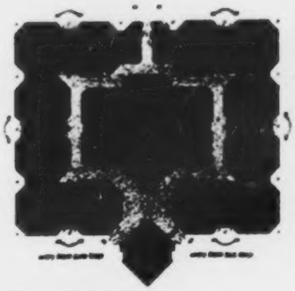
Floor patterns, french doors, two-level door handles, and access to protected outdoor play areas all add to the spirit of adventure at the school. Each classroom has direct access to the play zones through porch-like structures that provide a transitional space from the interior to exterior, complete with picnic tables and the symbolic railing—all elements commonly found at home. The school includes 12 generously sized flexible class areas, a dedicated art and music area, gross motor activity center, and a centrally located media center.

Site development includes separate bus and auto drop-off loops all leading to a front door, denoted by a yellow arched graphic. It truly is a facility full of life and happiness! ■

ARTWORK CAN BE DISPLAYED THROUGHOUT THE HALLWAYS.



CLASS AREAS ARE GENEROUSLY SIZED WITH FLEXIBLE WALLS TO ALLOW POSITIVE INTERACTION TO OCCUR.



FLOOR PLAN

OVERALL EXTERIOR—DESIGNED TO BE ARCHITECTURALLY SENSITIVE TO THE SURROUDING RESIDENTIAL NEIGHBORHOOD

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

van Dijk Pace Westlake Architects
925 Euclid Ave., #1900
Cleveland, OH 44115

Paul Westlake Jr., FAIA
(216) 522-1350

Design team

Paul Westlake Jr., FAIA
Project Architect

Phillip Schroeder
Job Captain

James Goncher
Field Architect

Client

Hathaway Brown School
(216) 932-4214

Grade span
Pre-K-Kindergarten

Current building capacity
72

Current building area
23,600 square feet

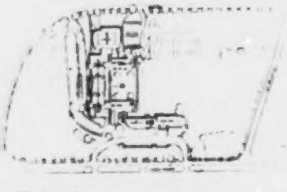
Total project costs
$3.0 million

Cost per square foot
$125

Space per student
328 square feet

Cost per student
$40,972

Completion date
1991



SITE PLAN

Hathaway Brown Primary School
Shaker Heights, Ohio

van Dijk Pace Westlake Architects

Bounded on the north side by a U-shaped cluster of the middle and upper schools, and on the west side by the primary school, the English Tudor inspired, 18-acre campus opens around a central courtyard and playing fields. The goals of the master plan were to preserve and reinforce the original fabric as much as possible, and to capture space within the existing buildings for new construction. (The site was extremely restricted.) The programmatic needs of the primary school, however, dictated new construction.

The addition was inserted between the two oldest buildings on campus, strengthening the architectural fabric without altering open spaces. The simplest and most obvious way to design the addition would have been to imitate the buildings on each side by duplicating their gabled slate roofs and Tudor half-timbering. However, the design strives to maintain a delicate balance between tradition and innovation. In order to defer to the adjacent buildings, the new wing was designed with a flat roof to act as a "lowland" between two "hills." The gently curved west facade minimizes the apparent size of the new building, while its details (terra-cotta color, coursing, limestone, and windows) relate to the historic context. Much research went into matching the exterior brick and limestone to the original color and texture.

The primary school has its own "geography" or identity, which extends to its site, arrival zones, and play areas.

LIBRARY

Comprising prekindergarten and kindergarten classes, it has four general classrooms, a music room with a stage, a science room divided into specific teaching areas, a greenhouse, a computer room, and a library with a theater for storytelling. The program is organized on two floors with a single, loaded gallery/link on the east side overlooking the existing courtyard. Clerestory windows are located in the gallery to provide cross-ventilation, and natural illumination from a skylight floods the library. Classrooms feature intimate alcoves for individual and group work and are designed to foster various activity zones, including art, reading, and storytelling. Resources to be shared between classrooms (kitchens and storage areas) are integrated into the design of classroom pairs. ■

STORY AREA IN LIBRARY

EXTERIOR

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ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Shuller Ferris Johnson + Lindstrom Architects, P.A.

214 Burgess Street
Fayetteville, NC 28301

Robert N. Shuller
(910) 484-4989

Design team

Robert N. Shuller
Project Architect

W. Wayne McGary
Project Manager

Michael W. Huntanar
Intern Architect

Progressive Design Collaborative
PME Engineers

Fleming & Associates
Structural Engineers

Client

Cumberland County Schools
(910) 678-2305

Grade span
K-5

Current building capacity
900

Current building area
97,000 square feet

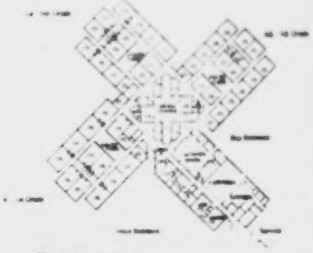
Total project costs
$5 million

Cost per square foot
$52

Space per student
101 square feet

Cost per student
$5,242

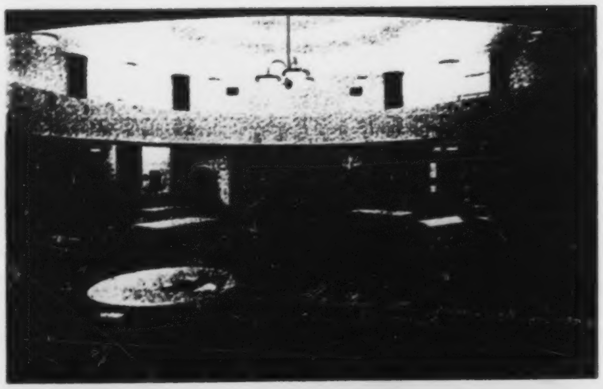
Completion date
July 1995



FLOOR PLAN

E.M. Honeycutt Elementary School Fayetteville, North Carolina

Shuller Ferris Johnson + Lindstrom Architects, P.A.



MEDIA CENTER

HALLWAY TO ADMINISTRATIVE OFFICE

CLASSROOM

The program was to design E. M. Honeycutt Elementary for 900 students on a rural site. The new 97,000-square-foot school (K-5) contains 50 teaching stations, comprising 40 regular classrooms, six remedial and special-education classrooms, a media center, activity room, kitchen/cafeteria, music classroom, art classroom, and administrative suite.

The goal was to establish the media center as both a functional center and a symbolic focal point for education. Natural lighting also was introduced in the media center and the adjacent corridor to further enhance the space as the heart of the school.

The media center has four entrances, each relating directly to its respective wing. Three age groupings, K-1, 2-3, and 4-5, were to have "houses" to function as independently as possible to control conflicting pedestrian traffic, with each "house" including student toilets, staff toilets, a teacher work area and conference space, and its own exit to playground areas.

The fourth wing of the building contains the support areas of the school, which include the activity room, the cafeteria, the art classroom, and the administrative suite. All visitors to the building can be visually monitored from the parking area to the entrance located by the administrative suite.

The school itself is located on a corner lot, with the building placed as far away from the street as possible, with the bus parking and service courtyard against one property line for greater visual control and remoteness from the playground area. ■

SOUTHWEST EXTERIOR VIEW

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ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.
114 York Street, P.O. Box 584
Michigan City, IN 46360
(219) 872-0635

Design team

Lee J. Brockway, AIA
Principal-in-Charge

Douglas M. Wickstrom, AIA
Project Manager/Designer

Richard G. Boyd, AIA
Project Architect

Charles A. McCoy, CET
Mechanical Designer

Stuart E. Franzen, ASLA
Landscape Design

Anthony E. Wood, RLA
Site Design

Terry J. Hamrick, CET
Gerald E. Kinyon, PE
Structural

William B. Harmon
Electrical Designer

Client

Penn-Harris-Madison School Corp
(219) 259-7941

Grade span
K-5

Current building capacity
720

Current building area
91,844 square feet

Total project costs
$10.2 million

Cost per square foot
$111

Space per student
128 square feet

Cost per student
$14,170

Completion date
August 1995

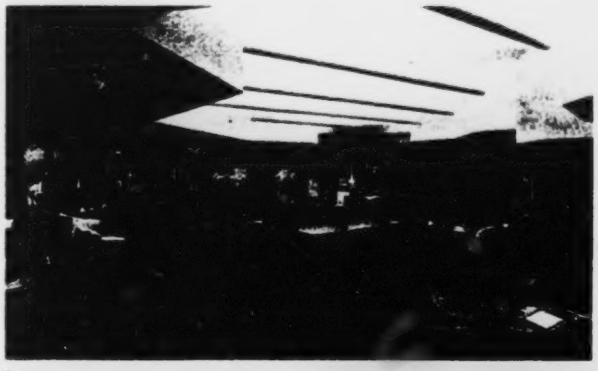
Horizon Elementary School Granger, Indiana

Fanning/Howey Associates, Inc.

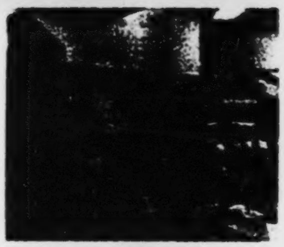
Horizon Elementary School is a new facility built in concert with the new Discovery Middle School in a campus setting. Although the buildings share the same site, there is careful identification and definition of vehicular traffic and outdoor physical activity areas. Because the Penn-Harris-Madison School District is a suburban school district and the schools are one of the most important focuses of this community's life, community-use space within the building and on site were key influences in the design of this new elementary school.

The academic activities are organized into learning teams of four or five classes. This is supported by the placement of the classrooms around extended learning centers and the use of operable walls that allow the flexibility to restructure each team area into appropriately sized spaces. Equally important, the classrooms are arranged in a continuous ring around the building, which deemphasizes grade separations and also allows for flexibility in accommodating fluctuations in the size of the grades. All classrooms have sloped projection surfaces for more effective use of the writing surfaces in the room. Lighting levels can be varied, and soft indirect lighting minimizes the strain on students' eyes.

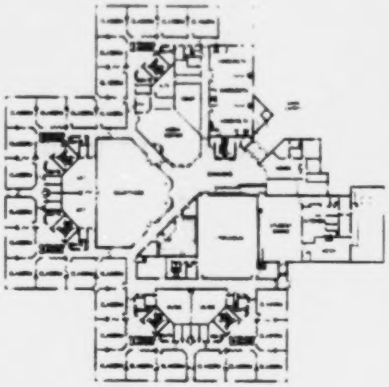
The media center is at the heart of the building and has immediate access to the adjacent computer lab. A large group instruction room is provided to allow several classrooms to join together in one large space for presentations, assemblies, and all group activities. This space is equipped with audiovisual capabilities to accommodate a wide variety of presentation methods. An advanced data network system



LIBRARY WITH MEDIA CENTER ACCESS.



KINDERGARTEN CLASSROOM WITH SEVERAL LEARNING SEGMENTS. SPACE INCLUDES COZY READING PIT AND COAT STORAGE CUBBIES SCALED FOR SMALL CHILDREN.



FLOOR PLAN

MUSIC/INSTRUMENTAL CLASSROOM WITH SLOPED PROJECTION CEILING. OPERABLE WALL SEPARATES TEACHER WORK AREA.

THE SCHOOL HAS A COURTYARD WITH TWO PONDS AND A FLOWING STREAM SUPPORTING WETLAND PLANTS AND ANIMALS FOR ENVIRONMENTAL STUDIES.

CLASSROOMS AROUND EXTENDED LEARNING CENTERS AND THE USE OF OPERABLE WALLS ALLOW THE FLEXIBILITY TO RESTRUCTURE EACH TEAM AREA INTO APPROPRIATELY SIZED SPACES.

is available throughout the building and will be part of the district's wide-area network. Video distribution is provided with a central video switch at the middle school allowing for cost savings in video equipment with no compromise in capability. Fiber-optic cable joins the two buildings on this site.

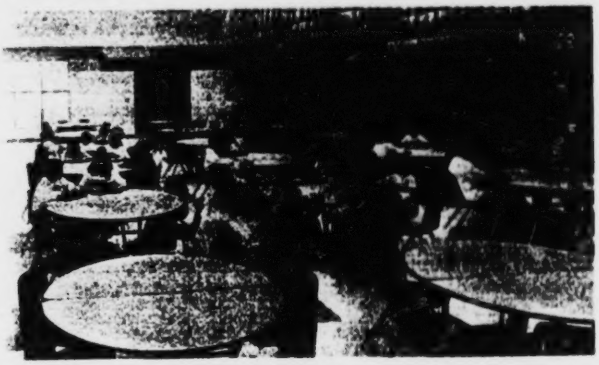
The dining area is adjacent to the gymnasium and is constructed with a raised floor, cyclorama curtain, stage curtains, a lighting system, and a sound system, allowing the dining area to serve as a stage for plays and presentations. An operable wall provides separation between the dining and gymnasium spaces when the scheduled activities require these spaces to be used independently.

Site development requirements included separation of elementary school visitor and bus traffic, and evening parking. Two separate playgrounds for the elementary school provide opportunities for outdoor physical activities based upon the age of the children. Each area is provided with hard and soft surfaces. Unique to this facility is the courtyard, which has been developed with two ponds and a flowing stream that support native wetlands, plants, and animals for environmental studies. This courtyard is located adjacent to project activity rooms to provide outdoor learning opportunities and also is located to offer natural light to flow into the corridors and commons area. The outdoor learning and teaching capabilities of the courtyard are enhanced by the provision of a fixed seating area. Much of the detail, design, and final construction of this environmental courtyard was done on a volunteer basis by local pool and environmental experts, parents, and school administrators.

The fan-powered, variable-air-volume heating/cooling system provides environmental requirements for all academic spaces. Heating is generated by a high-efficiency modular boiler system. Cooling is provided by two central, rotary-screw, air-cooled chillers to allow for complete cooling diversity at maximum energy efficiency. The building is controlled by a direct digital control and monitoring system that allows for off-site evaluation and building preventative maintenance planning. All major mechanical components are located within the building envelope, which provides a more convenient environment for maintenance during inclement weather and reduces damaging foot traffic on the roof.

The fourth wing houses the gymnasium and the cafeteria, while the core of the building is composed of the media center, which is the heart of the building, and the art, computer, and music rooms.

A community project room is located immediately past the building's front entrance. These areas are easily accessed from the other three wings since these spaces are utilized for instruction by all grade levels. This central space can be closed from the remainder of the building for evening use by the community. ■



THE DINING AREA IS ADJACENT TO THE GYMNASIUM, SEPARATED BY THE STAGE, ALLOWING FOR FLEXIBILITY FOR PERFORMANCES.

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ELEMENTARY SCHOOLS
NEW CONSTRUCTION

EMM/SHW Group

2855 E. Brown Road, Suite 28
Mesa, AZ 85213

Ronald L. Essley
(602) 830-3838

Design team

Ronald L. Essley
Architect/Principal-in-Charge

Richard J. Clutter
Architect/Project Architect

Scott K. Lutes, AIT
Production Team

Client

Mesa Unified School District No. 4
(602) 898-7704

Grade span
K-6

Current building capacity
960

Current building area
66,467 square feet

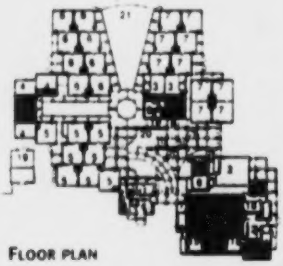
Total project costs
$5.7 million

Cost per square foot
$86

Space per student
69 square feet

Cost per student
$5,964

Completion date
August 1997



FLOOR PLAN

Las Sendas Elementary School
Mesa, Arizona

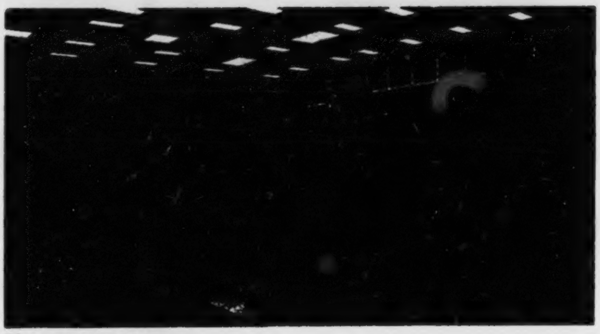
EMM/SHW Group

Challenged to design a new elementary school in an ecologically sensitive, rapidly developing residential suburb in the Sonoran Desert, northeast of Mesa, the EMM/SHW Group developed a design for the new school using a campus plan that reflects the natural land forms and colors of the site.

The 10-acre site is elevated above Phoenix and the surrounding cities of Mesa and Scottsdale, providing an exciting view to the west. Horizontal expansion of classrooms on the west side of the school is a direct design response that captures the view.

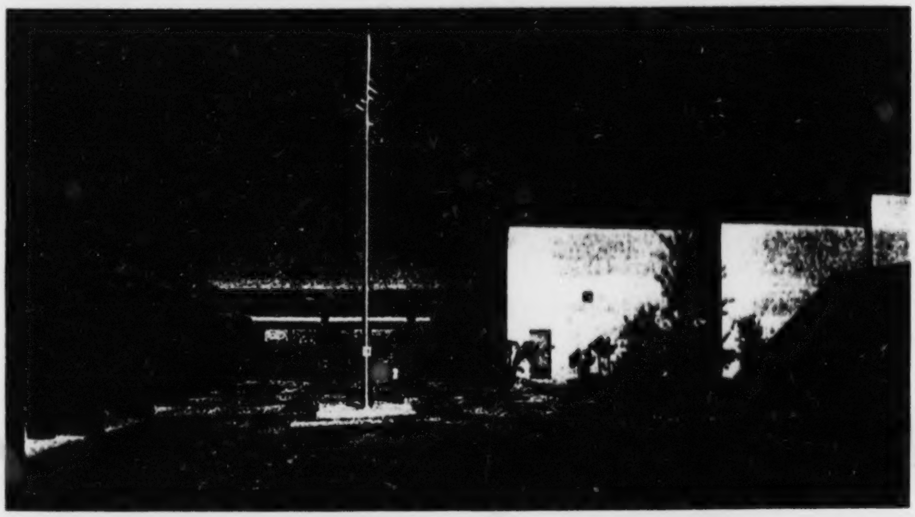
The interior courtyard provides for secured windows in all 32 of the school's classrooms. All classrooms and other spaces are connected by covered walkways in the courtyard.

MEDIA CENTER



MULTIPURPOSE ROOM

An energy-efficient, water-cooled, two-pipe, chilled-water system provides cooling for fan coils in each room. The fan coils are provided with auxiliary heating. State-of-the-art energy management and control provides fully automated temperature and scheduling to meet occupancy requirements while minimizing energy use. ■



THE INTERIOR COURTYARD PROVIDES COVERED ACCESS TO ALL AREAS WITHIN THE SIX-BUILDING CAMPUS.

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Durrant

942 CyCare Plaza
Dubuque, IA 52001

Kevin J. Eipperle, AIA
(319) 583-9131

Design team

Max N. Schmidt, AIA
Project Director

Kevin J. Eipperle, AIA
Design Architect

F. James Kolf
Construction Manager

Todd Donkle
Structural Engineer

Jeff Klopfenstein
HVAC Engineer

George Hannaman
Plumbing Engineer

Marty Valentine, PE
Electrical Engineer

David Stewart
Food Service Designer

Client

Lena Winslow School District No. 202
(815) 369-4527

Grade span
1-5

Current building capacity
750

Current building area
71,780 square feet

Total project costs
$6.4 million

Cost per square foot
$89

Space per student
96 square feet

Cost per student
$8,467

Completion date
August 1997

Lena Elementary School
Lena, Illinois

Durrant

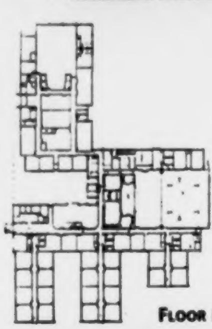
The new Lena Elementary School replaces an existing multilevel facility located on a remote site. The new facility's location, connected to the junior high school on the junior/senior high campus, allows for shared use of many of the support spaces designed in this new elementary facility. The design incorporates the concept of classroom wings for elementary grades one, 2-3, and grades 4-5.

The new cafetorium provides dining space for elementary and junior high students. It also serves as a performance auditorium for senior high drama productions and musical performances by all grade levels. In addition, the facility houses district offices and practice spaces for high school music students. The gymnasium provides physical education space for elementary students and practice space for competitive athletics at both the junior and senior high levels. In addition, the gymnasium is used by the community for both recreational and social purposes. A folding partition between the cafetorium and the gymnasium may be removed to open up a large multipurpose area.

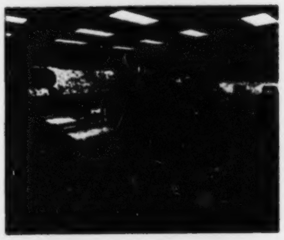
The shared use of this facility by all students, as well as community members, significantly contributed to support for this project and to the project's success. ■

CORRIDOR

EXTERIOR



FLOOR PLAN



CLASSROOM

RECEPTION AREA

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Douglas S. Snider, AIA

45 Hawthorne Ave., Suite 1
Medford, OR 97504

Douglas Snider
(541) 772-5203

Design team

Douglas Snider, AIA
Architect/Principal-in-Charge

Barbara Ciota, PE
Marquess and Associates, Inc.
Structural Engineer

Theodore W. Roner, PE
Marquess and Associates, Inc.
Mechanical Engineer

Douglas A. Buhr, PE
Douglas Engineering Pacific, Inc.
Electrical Engineer

Myron K. Hudson
Douglas Engineering Pacific, Inc.
Electrical Project Manager

John Hardey, PE
Hardey Engineering & Associates, Inc.
Civil Engineer

Fran Wing, ASID, IIDA
Sandy Friend, ASID, IES
Grape Street Design Associates
Interior Designers

Galbraith & Associates, Inc.
Landscape Architects

Client

Medford School District, 549c
(541) 776-8608

Grade span
K-6

Current building capacity
600

Current building area
63,438 square feet

Total project costs
$7.6 million

Cost per square foot
$119

Space per student
106 square feet

Cost per student
$12,642

Completion date
August 1997

Abraham Lincoln Elementary School Medford, Oregon

Douglas S. Snider, AIA

The Medford School District sought to develop a prototype for future schools that would accommodate current and future technology, provide an appropriate and functional setting for teaching students with special needs, and create a place for a variety of community activities.

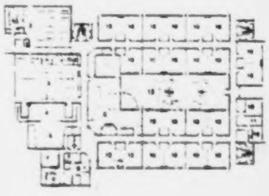
The south end of Abraham Lincoln Elementary School houses the gymnasium, music room, and cafeteria, and can be used for community activities after school hours.

The usually wasted space at the peak of the sloped roof forms a service gallery over the corridor that allows easy access to building services. Computer cabling and other signal lines are carried along the length of the gallery in a cable tray. Every instructional space easily can be connected to current and future electronic systems.

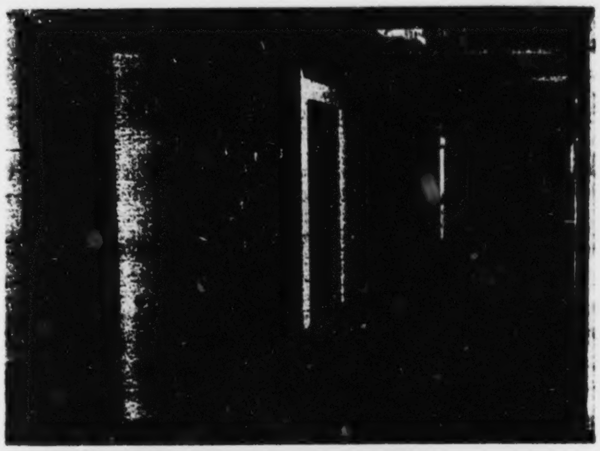
All classrooms have 12-foot-high ceilings with indirect lighting and ample window areas providing daylight and scenic views in all directions. The media center and interior classrooms open onto a spacious interior courtyard used for teaching, student activities, and circulation.

The exterior walls are precast concrete waffle panels. The roof framing uses long-span steel bar joists with deck. The mechanical system is a variable air volume system with a central boiler and chilling unit. ■

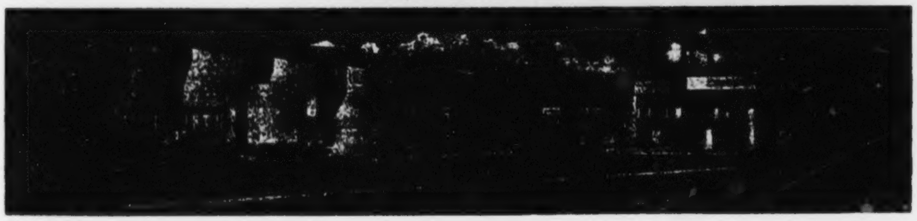
MEDIA CENTER ENTRANCE



FLOOR PLAN



CLASSROOM ENTRANCE GROUPING ALONG EAST CORRIDOR



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Steed Hammond Paul Inc.

1014 Vine Street, Suite 2100
Cincinnati, OH 45202

Melissa Walters, AIA
(513) 863-5441

Design team

Kevin Kreuz, AIA
Principal-in-Charge

Melissa Walters, AIA
Project Manager

Patti Sumner
Interior Designer

Client

New Richmond Exempted Village School District
(513) 553-2616

Grade span
Preschool-6

Current building capacity
600

Current building area
85,000 square feet

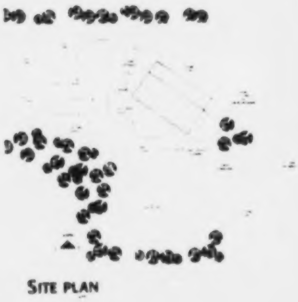
Total project costs
$9.5 million

Cost per square foot
$112

Space per student
142 square feet

Cost per student
$15,833

Completion date
August 1997



SITE PLAN

Locust Corner School
Cincinnati, Ohio

Steed Hammond Paul Inc.

MAIN CORRIDOR

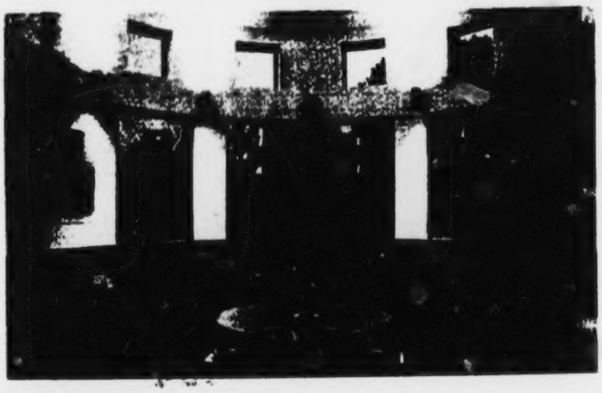
VISITOR ENTRANCE

Looking to enhance the quality of education, New Richmond Exempted Village School District wanted a building that would facilitate learning in young students, be adaptable to different teaching methods, and increase access to technology. Using Steed Hammond Paul's Schoolhouse of Quality process, the architects incorporated suggestions from various community groups into the design of Locust Corner School.

The school's design takes advantage of the site's natural conditions. Classroom areas are positioned back by the peaceful woods. Exterior building materials and color complement the natural surroundings. On the interior, bright colors, plenty of natural light, and child-size fixtures and furnishings make children feel welcome. Large planters at the student entrance bring the outdoors inside and provide a natural setting for indoor science experiments.

Spacious classrooms provide plenty of space for group work and individual learning. Classrooms are arranged in groups of four around alcove areas that enable several students to receive specialized instruction. Commons areas permit several classrooms to be brought together for team teaching, group presentations, and science experiments. Seven special classroom spaces fulfill speech therapy and special education needs.

The facility incorporates the latest in technology, including networked computers and television monitors in classrooms and alcove spaces and a schoolwide media retrieval system. The building includes enough cabling and conduit to handle the school's future technology needs, including the district's plan to eventually network all of the district buildings together ■



RESOURCE CENTER

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Tappé Associates, Inc.

Six Edgerly Place
Boston, MA 02116

Ann W. Pitt
(617) 451-0200

Design team

A. Anthony Tappé, FAIA
Principal-in-Charge

Jeffrey R. Davis, AIA
Associate-in-Charge

Ann W. Pitt
Project Manager

Jeffrey Yost
Job Captain

Christopher Kiley
Designer/Detailer

Client

Longmeadow School District
(413) 565-4200

Grade span
Pre-K-5

Current building capacity
630

Current building area
81,500 square feet

Building area before
addition/renovation
71,000 square feet

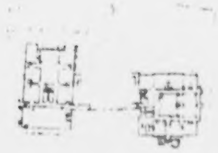
Total project costs
$11.5 million

Cost per square foot
$141

Space per student
129 square feet

Cost per student
$18,253

Completion date
Summer 1997



SITE PLAN

Longmeadow Center Elementary School
Longmeadow, Massachusetts

Tappé Associates, Inc.

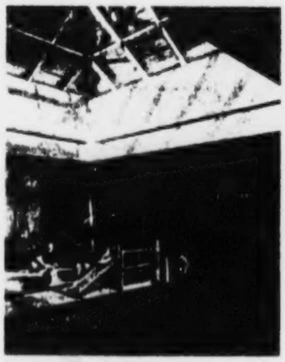
Situated on historic Longmeadow Green, Longmeadow Center Elementary School consisted of two buildings separated by a public road. The children were required to cross the road for lunch and gym class. The town's Historic District Commission required that any addition could not be visible from the historic green, nor could the front facade of the facilities be altered.

Our design solution rerouted the road around the schools and manipulated the topography to provide a below-grade addition that unites the buildings. The addition—which consists of a new library/instructional media center, computer laboratory, and connecting corridor—is not visible from the town green. Creative landscaping masks the masonry plaza on top of the addition, which is used for group gatherings and for safe, outside crossing between buildings.

The expanded school also includes new second-level classrooms, kindergarten classrooms, art and music rooms, and special-needs areas, as well as a relocated cafeteria and kitchen. All building systems have been upgraded, and state-of-the-art technology has been incorporated. In addition, the playground area outside has been more than doubled in size.

This design solution not only fulfills the requirements of the town, the state, and the Historic District Commission, it also brings together past, present, and future in a facility that preserves history and displays the town's commitment to quality education. ■

EXTERIOR



SKYLIT PLAY SPACE

CLASSROOM

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Cooper Carry, Inc.

3520 Piedmont Road NE
Atlanta, GA 30305

Kevin Cantley
(404) 237-2000

Design team

Kevin Cantley
Design Director

Sean McLendon
Project Architect

Client

The Westminster Schools
(404) 609-6207

Grade span
Pre-K-5

Current building capacity
500

Current building area
74,500 square feet

Building area before
addition/renovation
31,000 square feet

Total project costs
$6.4 million

Cost per square foot
$85

Space per student
150 square feet

Cost per student
$12,772

Completion date
June 1997

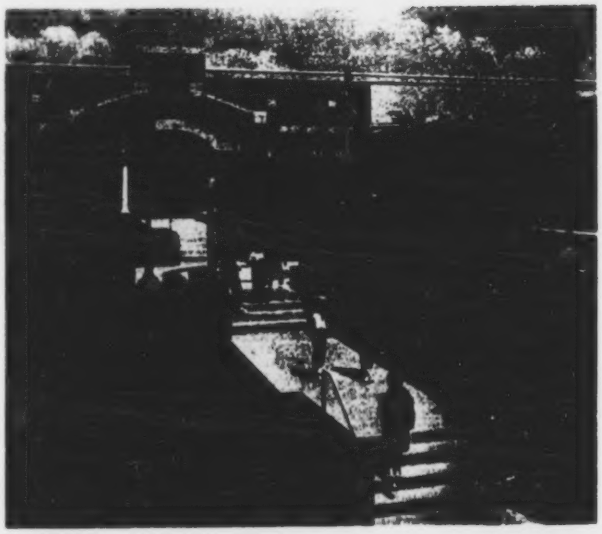
Love Hall at Woodruff Elementary Atlanta, Georgia

Cooper Carry, Inc.

The renovation and addition to Westminster's Woodruff Elementary School involved approximately 74,000 square feet of programmed area, including circulation and support space. This includes 56,000 square feet of new construction and 8,000 square feet of renovated space. Approximately 22,000 square feet of existing construction was demolished.

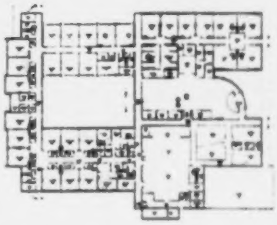
The client's fundamental objective was to provide pleasing architecture consistent with the school's existing campus. The existing site was steeply sloped and required extensive site work to meet the school's objective of a one-level school. The school asked for the design to incorporate portions of the existing structure and to create a meaningful identity for the lead donors of the facility.

The design solution: a two-story classroom wing that addresses the steep site while creating a linear student breezeway for pickup. A courtyard connects the breezeway to the main entrance. The school also incorporates the 30,000-volume Smythe-Gambrell Library, one of the state's largest elementary collections, and a basketball gymnasium floor that was used by the 1996 Atlanta Olympic Games. The building includes brick and cast stone masonry on steel-frame construction and a water-source heat-pump HVAC system on a gas-fired boiler. ■


COURTYARD

LAB ROOM

CLASSROOM


FLOOR PLAN

409

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Burr Lawrence Rising + Bates Architects, P.S.

1145 Broadway Plaza, Suite 1200
Tacoma, WA 98402

Jerry Lawrence, FAIA
(253) 627-5599

Design team

Thomas L. Bates, AIA
Principal-in-Charge

Lee Fenton, AIA
Project Architect

Chalker Putnam Collins & Scott
Structural Engineers

Tres West Engineers
Mechanical/Electrical Engineers

Lynn W. Horn & Associates
Landscape Architect

Client

Issaquah School District No. 411
(425) 557-7002

Grade span
K-5

Current building capacity
451

Current building area
55,228 square feet

Building area before addition/renovation
45,200 square feet

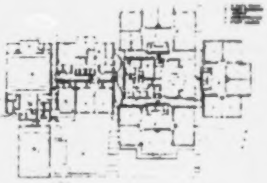
Total project costs
$4.2 million

Cost per square foot
$76

Space per student
122 square feet

Cost per student
$9,313

Completion date
September 1997



FLOOR PLAN

Maple Hills Elementary School
Issaquah, Washington

Burr Lawrence Rising + Bates Architects, P.S.

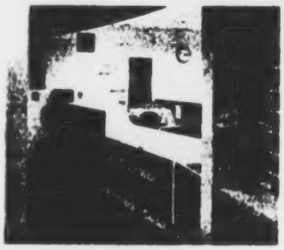
The modernization and addition of this bland, 1969 campus school was an exciting challenge. The architectural program was developed by the school district's educational planning team in close association with the design team. The planning team's effort was to create a new vision for the existing Maple Hills Elementary School for the 21st century.

The existing campus consisted of a series of covered walks connecting classroom clusters with a centrally located library and administration building. The new classroom clusters respond to the school-within-a-school educational concept that employs a modified team-teaching approach and requires space for both closed study areas and joint group activities occurring simultaneously. Areas that were once dark, compartmentalized interior offices have been transformed into naturally lighted student gathering spaces at the core of each cluster of six classrooms. This transformed space now serves as small group tutoring areas, larger class instructional space, or small assembly areas.

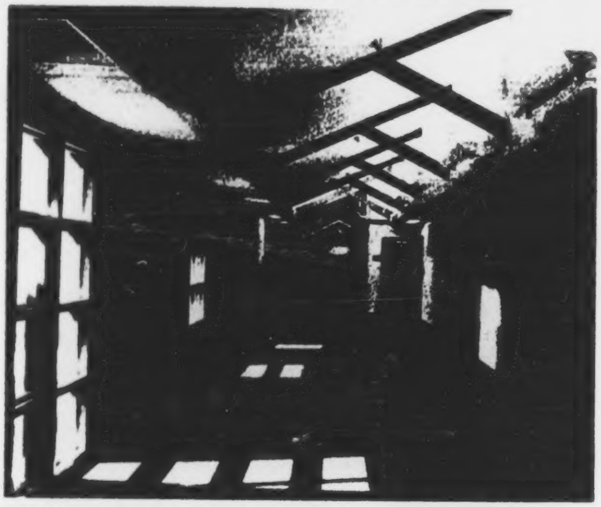
Architecturally, the playful approach to color, lighting, and scale, in both educational and circulation spaces, adds character and instills a sense of pride in the newly modernized facility. The exterior dark green and cedar colors are found naturally in the surrounding wooded site. Free-flowing patterned carpet, complemented by wall patterns and colorful exposed truss, create a fun and exciting environment for small children. Windows at different heights and sizes provide views of the reading garden for children along the corridor.

Upgrading the facility for technology helped transform Maple Hills Elementary School from an aged campus into a state-of-the-art educational facility for the 21st century. ■

NEW ENTRY



NEW ADMINISTRATION AREA



ENCLOSED COVERED WALKWAY—PLAYFUL COLOR PATTERNS, DAYLIGHT, AND WINDOWS AT THE HEIGHT OF SMALL CHILDREN, ALONG WITH PAINTED BEAMS, ADD A SENSE OF CHARACTER AND SCALE FOR SMALL CHILDREN.

Marshall Elementary
Byron Center, Michigan

Tower Pinkster Titus Associates, Inc.

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Tower Pinkster Titus Associates, Inc.

1000 S. Burdick Street
Kalamazoo, MI 49001

Tom Mathison
(616) 343-6133

Design team

Stan Skopek
Architectural Designer

Lynn Waldron
Mechanical Engineer

Paul Bede
Electrical Engineer

Larry Hulst, JDH Engineering
Structural Engineer

Client

Byron Center Public Schools
(616) 878-6100

Grade span
K-4

Current building capacity
550

Current building area
74,265 square feet

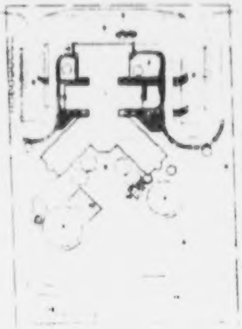
Total project costs
$8.2 million

Cost per square foot
$110

Space per student
135 square feet

Cost per student
$14,928

Completion date
January 1997



SITE PLAN

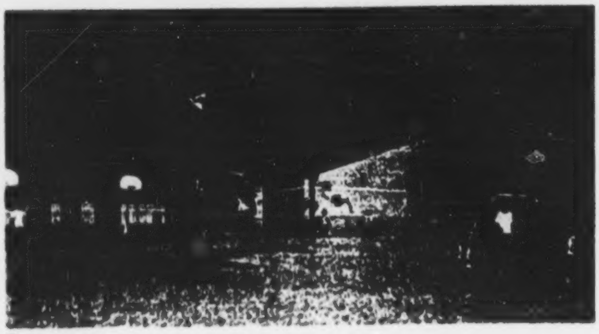
A team of teachers, administrators, architects, and engineers worked together to bring this K-4 school facility to life. The one-story facility includes four academic wings, a gymnasium, a media center, conference rooms, offices, and a staff lounge. The floor plan was designed with the children's safety in mind. Classrooms and outdoor playground areas are distanced from high-traffic areas. Pedestrian and vehicular traffic patterns were carefully planned. Designers also paid careful attention to selecting building materials, which would endure with minimal maintenance.

A primary focus of the school's program called for a facility design that established the principal's office, in conjunction with the school's central office, at the core of the facility. The principal wanted to be located at the center of the building to easily greet children as they enter and depart, creating a welcoming atmosphere for students. This was accomplished by designing four academic wings extending from the center of the building.

To avoid the appearance of long, boring corridors, ceilings were raised. Geometric patterns were created by exposing portions of the mechanical ductwork, which was painted in bright colors. The interplay of geometric shapes, coupled with brightly colored paint, creates visual interest in this cheerful learning environment. ■

MAIN ENTRANCE WITH GLASS ATRIUM

CORRIDOR



PLAYGROUND

ELEMENTARY SCHOOLS
PROJECT IN PROGRESS

Cole and Goyette, Architects and Planners Inc.

540 Franklin Street
Cambridge, MA 02139

Harold Goyette, AIA, AICP
(617) 491-5662

Design team

Harold Goyette, AIA, AICP
Principal

Jason Knutson, Associate AIA
Marek Garlicki
Uma Puthanveetil
Deborah Marai

Client

City of Quincy
(617) 984-8700

Grade span
Pre-K-5

Current building capacity
600

Current building area
72,000 square feet

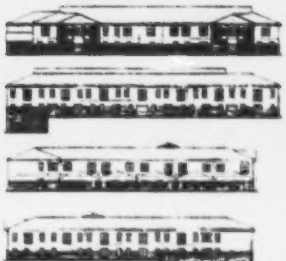
Total project costs
$9 million

Cost per square foot
$125

Space per student
120 square feet

Cost per student
$15,000

Completion date
January 1998

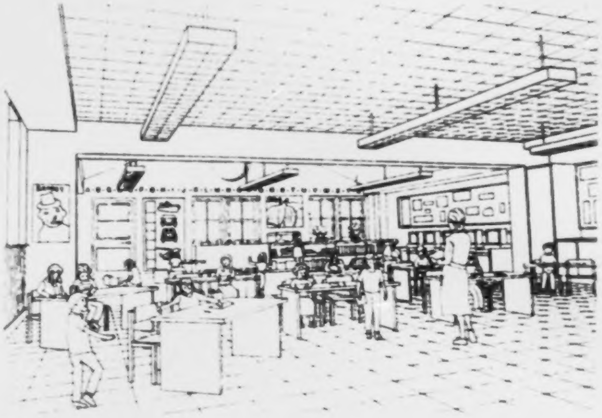


ELEVATIONS

Clifford Marshall Elementary School Quincy, Massachusetts

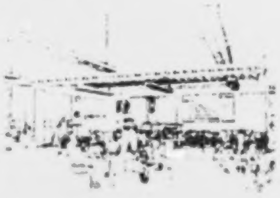
Cole and Goyette, Architects and Planners Inc.

Clifford Marshall will be the first new school to be built in historic Quincy, Mass., since 1975. The elementary school is an integral part of the city's revitalization effort and commitment to improving its educational facilities. Clifford Marshall will serve 600 children in grades prekindergarten through 5th grade, a student population that is expected to grow with the emergence of the Quincy Shipyard and the city's changing demographics.



CLASSROOM

The design of the school reflects the dual programmatic goals for the two broad age groups of students. Two separate main entrances will mark corners of the building's east facade. The north entrance will serve third, fourth, and fifth graders, while the south entrance will be used solely by the preschool and primary students. A prominent design feature is the one-story wing of classrooms on the south facade for the younger students.



KINDERGARTEN CLASSROOM

The building's overall style and layout are reminiscent of the prototypical red brick elementary school seen throughout the region, with classrooms located on the perimeter and assembly rooms in the center, including gymnasium, cafetorium, science/computer room, and library/media center. In addition to being cost effective and energy efficient, this two-story 72,000-square-foot building is technologically sophisticated and fully handicapped accessible. ■

BUILDING MODEL

BEST COPY AVAILABLE

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

**Roy G. French Associates, Inc.
Architects and Planners**

150 Elizabeth Lane
Rochester, MI 48307

David G. French, AIA
(248) 656-1377

Design team

David G. French, AIA
Principal-in-Charge

Douglas A. LaFerle, AIA
Principal, Design

E. J. Harrington
Project Manager

BCF Engineering, Inc.
Mechanical/Electrical

BMJ Engineers
Civil

McClurg & Associates, Inc.
Structural

C.I.I. Food Service
Food Service

Client

Dennis Guiser, Supt.
Algonac Community Schools
(810) 794-9364

Grade span
K-5

Current building capacity
300

Current building area
35,186 square feet

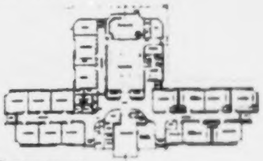
Total project costs
$3.4 million

Cost per square foot
$85

Space per student
117 square feet

Cost per student
$11,167

Completion date
July 1993



FLOOR PLAN

Millside Elementary School
Algonac, Michigan

Roy G. French Associates, Inc. Architects and Planners

Is school boring? Certainly not at Millside Elementary School. The creative energies of the RGF design team created a playful, fun, and stimulating environment featuring checkerboard floor patterns, wavy corridors, reflective ceilings, and an overall "kid friendly" ambiance.

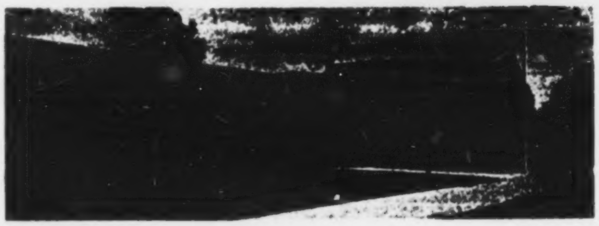
A typical walk in these corridors reveals a huge, clear skylight pouring in sunshine to the center of the school, flanked by curved tile walls with cheerfully colored accent bands of lilac, yellow, and terra cotta. This colorful theme continues throughout the school in its classroom casework, paint, lockers, gymnasium floor, and light fixtures.

The school contains 10 classrooms, two kindergarten rooms, computer lab, science and art rooms, and a multipurpose room with a stage and a music room, all culminating in 34,000 square feet of learning space. In the media center, a wide expanse of glass brings the outdoors in. A highly reflective linear metal ceiling emphasizes the importance of the media center as not only a focal point, but as the "jewel" of the school.

The upper and lower elementary classes are joined by the administrative offices, gym, and media center core, but the two class levels have separate playgrounds at opposite ends of the school. Safety considerations prompted the administration area to be located at the front of the facility allowing unobstructed vision of the bus loop and visitors entering the school. ■

MEDIA CENTER ENTRANCE

INTERIOR CORRIDOR



MAIN ENTRANCE

413

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Armstrong, Torseth, Skold and Rydeen, Inc.

4901 Olson Memorial Highway
Minneapolis, MN 55422

Tammy Magney, AIA, REFP
(612) 545-3731

Design team

Tammy Magney, AIA, REFP
Principal-in-Charge

Zack Johnson, AIA
Project Manager

David Maroney, RA
Craig Hinrichs, AIA
Design

Client

Independent School District 192
(612) 463-6400

Grade span
Pre-K-5

Current building capacity
750

Current building area
101,000 square feet

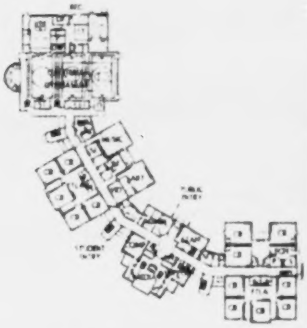
Total project costs
$9 million

Cost per square foot
$82

Space per student
134 square feet

Cost per student
$12,000

Completion date
August 1997



FLOOR PLAN

North Trail Elementary School Farmington, Minnesota

Armstrong, Torseth, Skold and Rydeen, Inc.

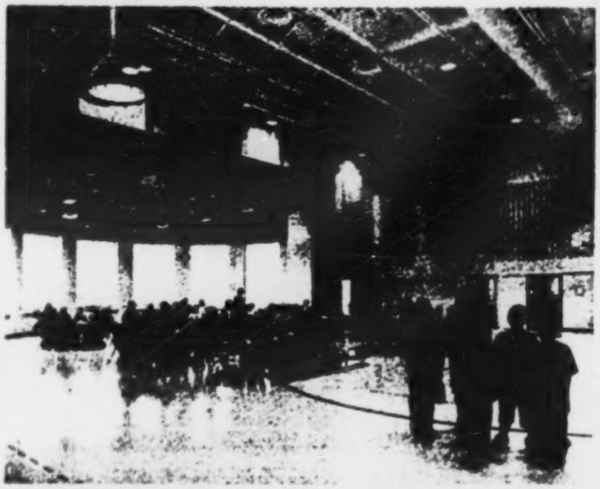
Encouraging the excitement of young students and the motivation of teachers and parents, the educational philosophy is the cornerstone of the learning environment at North Trail Elementary School. That philosophy is reflected in the design and overall layout of the school building, where the architectural concept was to provide a fun, dynamic, and functionally efficient facility for 750 students.

The creative layout of classroom groupings and minimized corridors resulted in a very high percentage of the floor area being more fully utilized for learning activities.

The integrated core instructional classrooms are grouped around a common learning/resource area and are divided into grade-level houses. For flexibility, a variety of learning spaces were designed in each house to accommodate the needs of the school's educational delivery philosophy.

The playful nature of the building's circulation pattern, and the use of well-placed windows, provide the sun-filled spaces in small scale "houses," making the kids' experience in a large building more friendly.

Preschool and elementary age students are especially sensitive to their physical environment and are very impressionable. North Trail Elementary utilizes color, natural light, spatial organization, and form to provide a comfortable and stimulating learning environment. ■



GYMNASIUM/CAFETERIA/PERFORMANCE AREA

MEDIA CENTER

MAIN PUBLIC ENTRY

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

SWBR Architects, P.C.

387 E. Main Street
Rochester, NY 14604

Edward S. Butcher, AIA
(716) 232-8300

Design team

Edward S. Butcher, AIA
Partner-in-Charge

Kenneth J. Smith, AIA
Project Manager/Designer

Frank O. Ianiro
Job Captain

Peter N. Clabeaux
Technical Coordinator

Andrew J. Stouppe
Structural Engineer

John B. Sousa
Structural Technician

Client

Rochester City School District
(716) 262-8378

Grade span
Pre-K-5

Current building capacity
850

Current building area
104,000 square feet

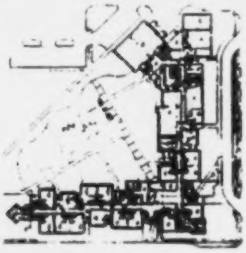
Total project costs
$11.7 million

Cost per square foot
$113, including site work

Space per student
122 square feet

Cost per student
$13,765

Completion date
September 1996



FLOOR PLAN

Northeast Elementary School
Rochester, New York

SWBR Architects, P.C.

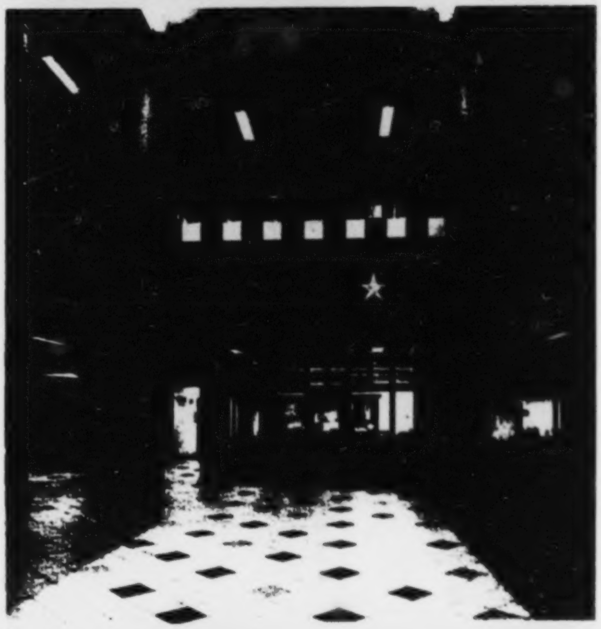
Completed on schedule and on budget, the $12-million Northeast Elementary School has met both client and community goals well. The school has been welcomed and "adopted" by its neighborhood. Both outdoor play areas and school facilities are being used by local community groups and children on weekends and during off hours. Some spaces, such as the cafeteria/auditorium, can be subdivided into smaller rooms for use by groups of various sizes.

For all its richness of color and detail, the school's interior still relies on personalization by the building's occupants. The degree of ownership of the new school by the multicultural faculty and student body is readily observable as they personalize classrooms.

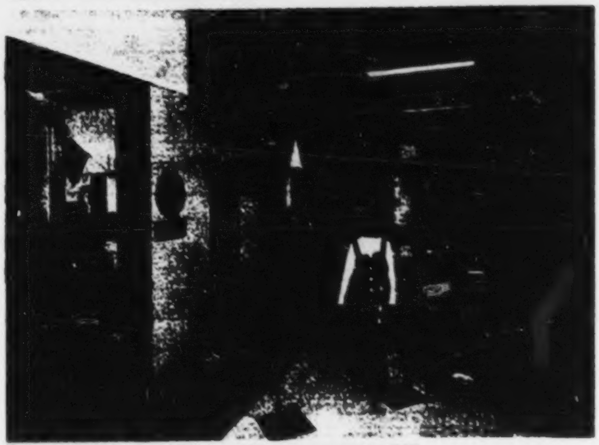
The Rochester City School District found that many of the details developed for this project were desirable enough to make them district standards. David Kaye, architect for the Rochester City School District, noted that "SWBR did an excellent job with the technical aspects of materials and production in the field. The project as a whole went smoothly from the design process and detailing to construction administration. The district is very pleased with the building."

In addition, by sheltering the open, park-like nature of its site and respecting the residential scale at the street edges, Northeast Elementary School has succeeded in meeting client goals while quietly becoming an integral part of the existing neighborhood fabric. ■

VIEW OF COURTYARD FROM STAFF PARKING LOT



VIEW OF ATRIUM AND MAIN OFFICE



OPEN CORRIDOR, DEFINING CLASSROOM NEIGHBORHOODS

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.
114 York Street, P.O. Box 584
Michigan City, IN 46360
(219) 872-0635

Design team

Douglas M. Wickstrom, AIA
Principal-in-Charge, Project Manager/Designer

Roger Hulsey
Project Coordinator

Charles A. McCoy, CET
Mechanical Designer

Stuart E. Franzen, ASLA
Landscape Design

Gerald E. Kinyon, PE
Structural

Edward J. Sawa
Construction Administration

Client

Tri-Creek School Corp.
(219) 696-6661

Grade span
K-5

Current building capacity
600

Current building area
71,623 square feet

Total project costs
$9.2 million

Cost per square foot
$128

Space per student
106 square feet

Cost per student
$13,633

Completion date
November 1995

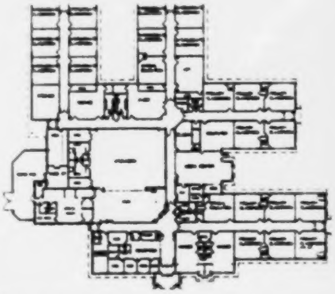
Oak Hill Elementary School Lowell, Indiana

Fanning/Howey Associates, Inc.

The Oak Hill Elementary School was designed to house approximately 600 students in grades K-5. It is a replica of an elementary school designed for the Tri-Creek Elementary School Corp. five years prior. The earlier building had been deemed a success both in educational and community-use terms by the patrons of the school district, so the consensus in the community was that the new building for the Oak Hill attendance area should be based upon the earlier design. An intensive effort involving administration, staff, and patrons was made to identify areas in which the earlier building could be improved.

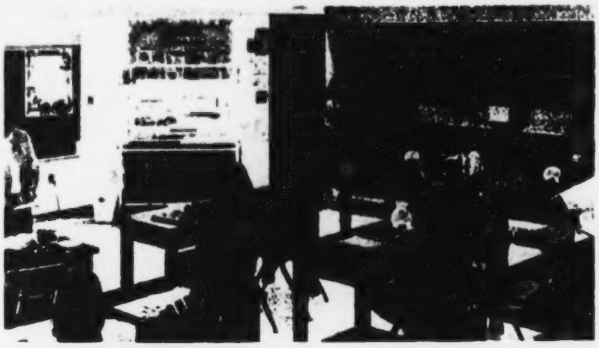
As a result of that effort, minor modifications were made to the earlier plan, including a different approach to coat storage in the classrooms and the provision of additional classrooms at the end of one of the academic classroom wings. The dining area also was increased in size, and several other modifications were made to the building plan, equipment, and finishes.

One of the modifications affecting the educational capabilities of the building was the provision of sloped projection surfaces within all regular classroom spaces. This allows the use of overhead projection of images without the limitations imposed by a retractable screen. The room lighting is also configured and switched to facilitate different visual presentation methods.

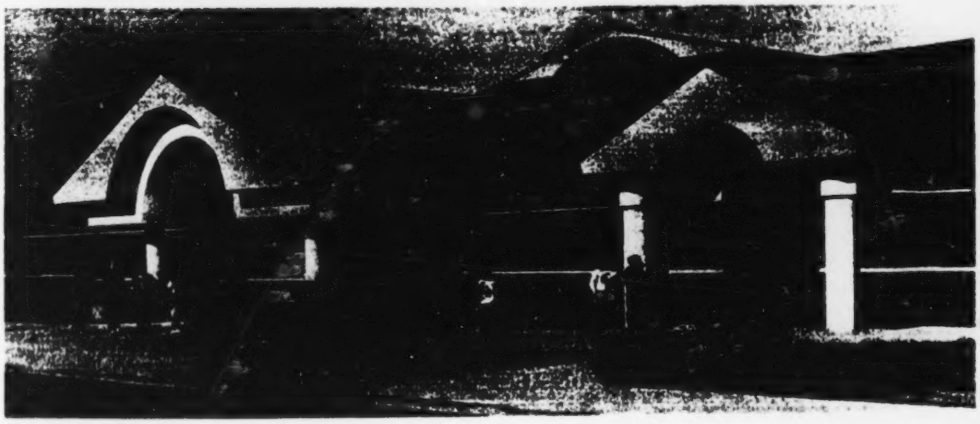


FLOOR PLAN

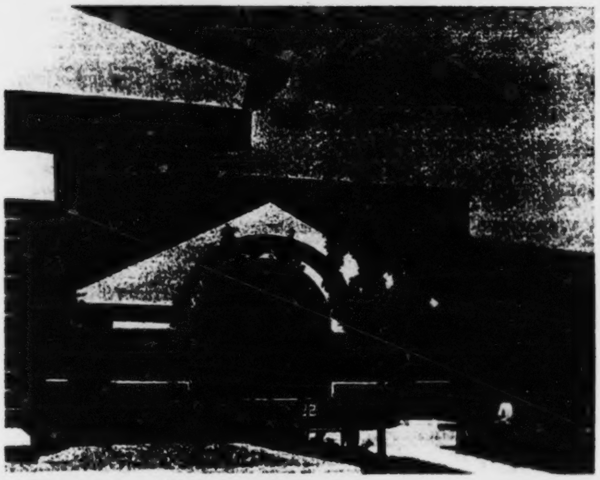
Among the important educational features retained from the original building was the zoning of the building into primary and intermediate classroom areas. This is further defined into age-group-specific wings of the building. The placement of the key support areas such as the media center, special education, music, science, art, and physical educa-



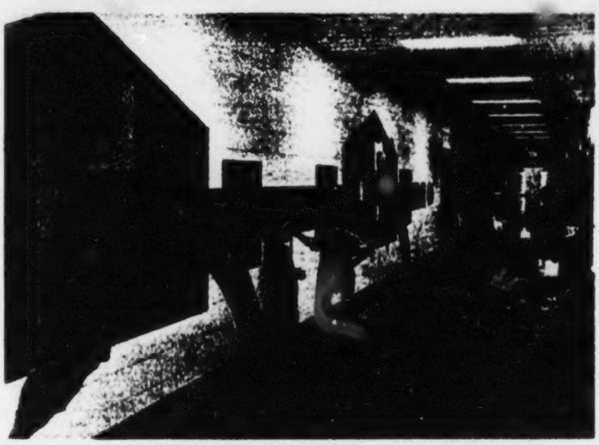
SCIENCE CLASSROOM



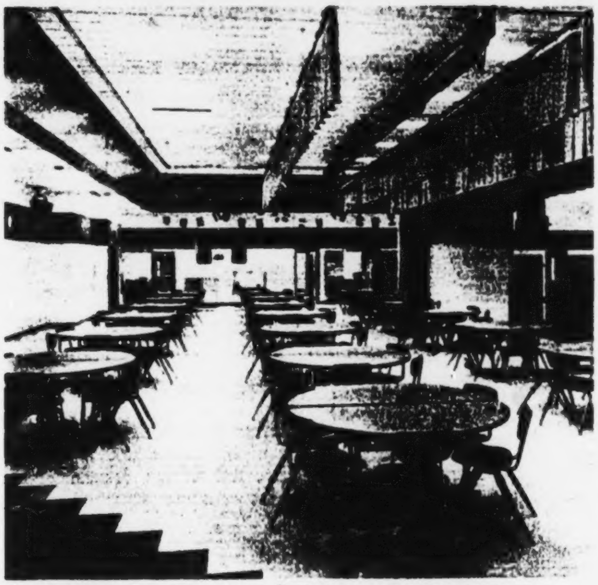
EXTERIOR FRONT ENTRY



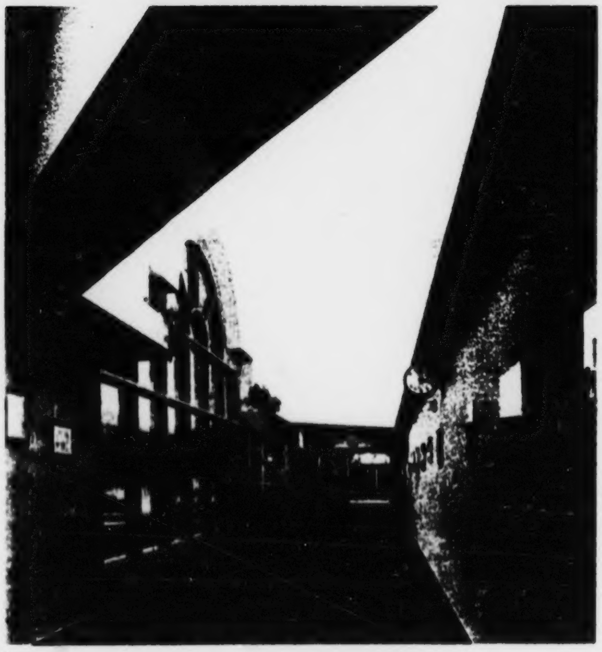
EXTERIOR COURTYARD/OUTDOOR LEARNING



COLORFUL GRAPHICS ENHANCE THE HALLWAYS.



CAFETERIA AND FOOD SERVICE AREA. ADJACENT GYMNASIUM IS PARTITIONED WITH OPERABLE WALL.



LIBRARY ENTRANCE WITH MAIN ENTRY IN BACKGROUND

tion in central locations was kept as it was in the earlier building. This placement also allows separation of areas to be used for evening community use. The gymnasium, dining space, and media center, as well as the science room and music room, have been located in such a way that it is possible to access these facilities without opening the entire building.

Among the important aesthetic characteristics of the original building were the use of a sloped shingled roof, residential scale, and a clear definition of entries that integrate it into the surrounding neighborhoods. These features were retained for the new Oak Hill Elementary School, but the colors of the exterior materials were changed to provide a new identity. In addition, the interior colors were chosen to provide a clearly different sense of place for the new building.

On the site, there is a clear definition of the parent drop-off, bus drive, evening parking, and site-service areas. Particular attention is made to separating parent drop-off traffic from bus traffic. The bus drive also is intended to function as evening patron parking, and as a wet weather play area during the day. At each age level, specific hard and soft surface play areas have been developed that are appropriate to those students. These play areas have been placed away from locations in which the building could expand.

With regard to the future, all building utilities have been stubbed to allow for expansion at the end of the classroom wings. The building has been provided with the infrastructure for educational technology, in the form of cable tray, conduit in the appropriate locations, and power. The school district is providing the educational technology wiring and electronics through other funds.

In summary, careful attention has been given by parents, teachers, administrators, and the school board to the creation of a school building that works as a part of the community now, that is based on a design that has already stood the test of time, and that is prepared for the future. ■

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417

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

URS Greiner, Inc.

3950 Sparks Drive SE
Grand Rapids, MI 49546

Mitchell C. Watt, AIA
(616) 285-3500

Design team

William A. Stevenson, AIA
Principal-in-Charge

Larry Eaton
Project Manager

Allen DeJonge, AIA
Project Architect

Steven Turnipseed, AIA
Design Architect

Linda Laughter, ASID
Interior Designer

James Gillan, ASLA
Landscape Architect

Client

Montague Area Public Schools
(616) 893-1515

Grade span
K-5

Current building capacity
700

Current building area
71,000 square feet

Building area before
addition/renovation
35,800 square feet

Total project costs
$6.4 million

Cost per square foot
$90

Space per student
101 square feet

Cost per student
$9,095

Completion date
June 1996

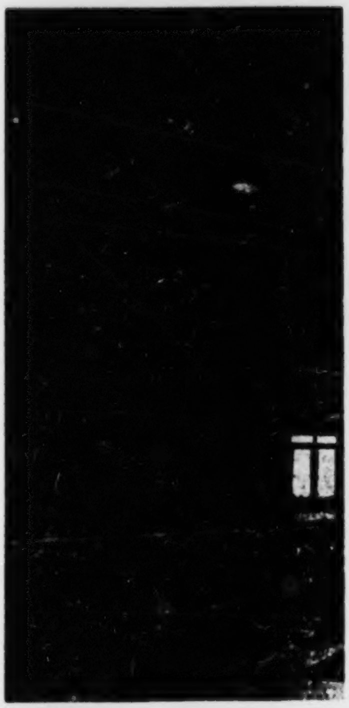
Oehrli Elementary School
Montague, Michigan

URS Greiner, Inc.

The original two-story school building was constructed in 1921 and expanded in 1949. It is located within an older, rural, small town neighborhood and is the sole elementary school serving the community. Because the school serves as an important tie to the past, replacement was not an option.

Management of student growth was a main concern. The enrollment at the elementary school had grown considerably over the past few years. The use of portable classrooms was the only way to accommodate the growing student population. At the time of construction, there were seven portable classrooms in use. The district and the community wanted to improve curriculum delivery by completely modernizing and expanding the existing structure.

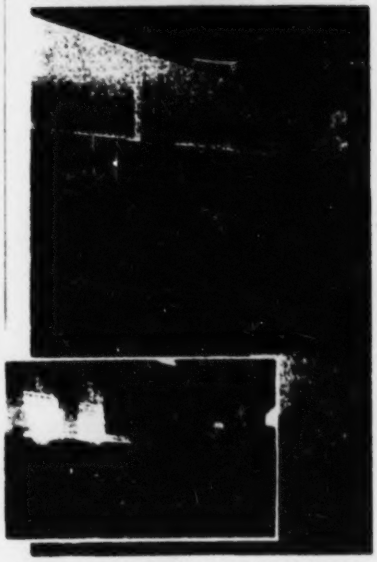
All existing classrooms were remodeled to include new fixtures, surfaces, and equipment. The existing stained and sagging seven-foot-high corridor ceiling system was removed to expose a 12-foot-high, sloped roof structure that was painted and lighted. A new corridor that repeated this special exposed structure pattern was added, creating a continuous path between the main entry and the student entry. The existing multipur-



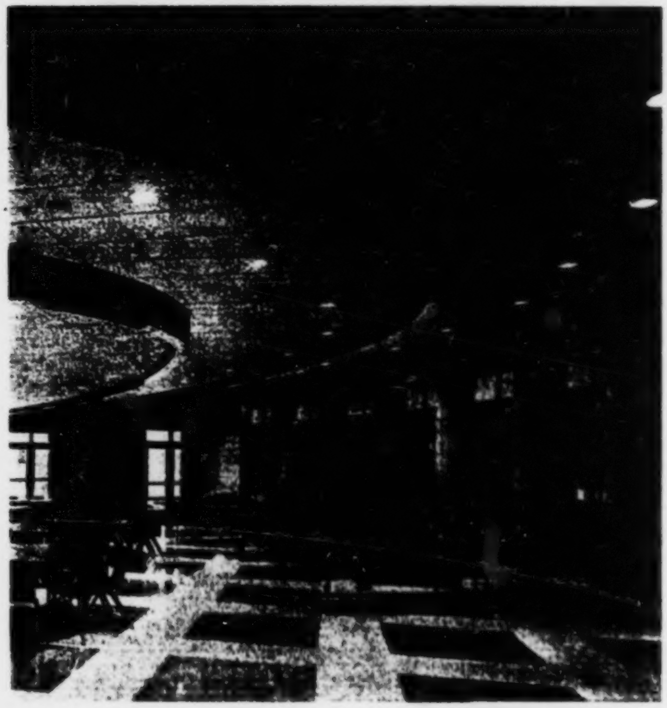
New cafeteria

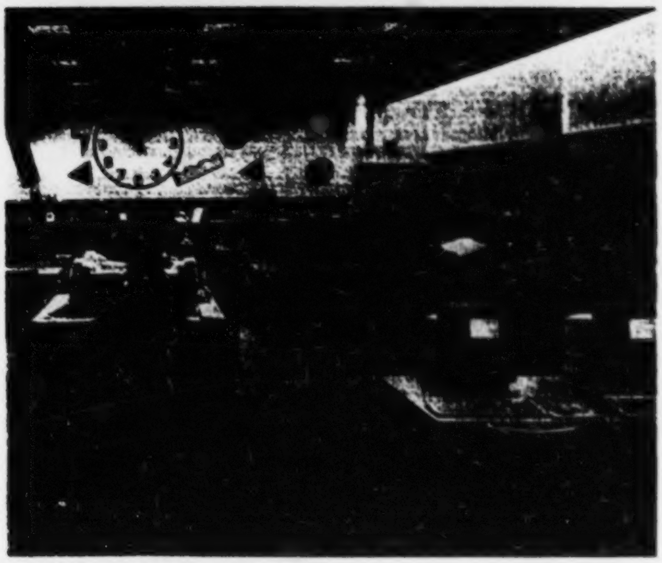
1949 addition was refaced.

New corridor—Inset before renovations



New media center—Inset former multipurpo



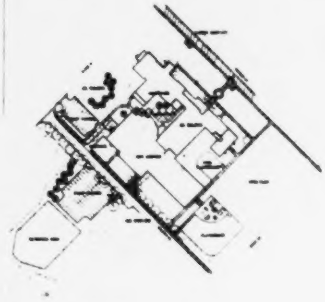


OM WAS CONVERTED TO NEW MEDIA CENTER.

pose room was converted to a media center, complete with a graphic, oversized, working wall clock.

Besides new stairs and an elevator, the additions include a new gymnasium, a kitchen and cafeteria, and 11 classrooms. The technology enhancements include building-wide fiber and copper cabling, telephone, and video distribution system.

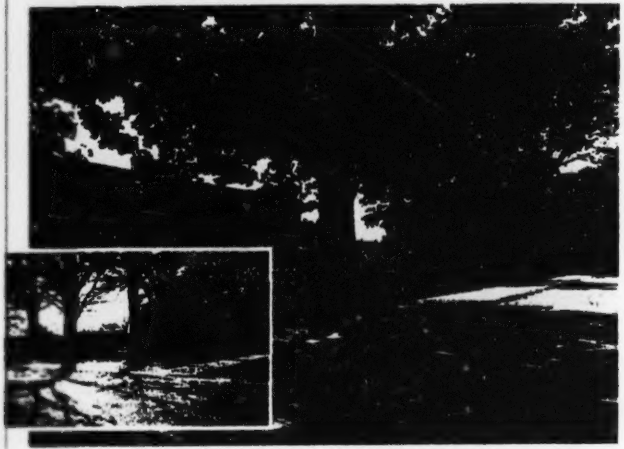
The infilled windows on the 1921 structure were reopened. The 1949 addition and the new addition were faced in matching brick with limestone accents that reflect the historic character of the original 1921 building. The playgrounds were improved, providing separate spaces for both lower and upper elementary students. Additionally, small courtyards were created to promote quiet reading time.



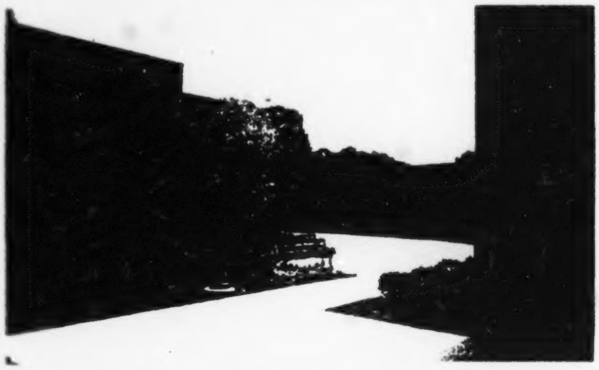
SITE PLAN

Technical data includes:

- brick veneer over masonry bearing wall construction,
- fully adhered, single-ply membrane roofing system,
- insulating glass in thermally broken frames,
- unit ventilators in classrooms, and
- hot-water boiler system. ■



1921 FACADE WAS RESTORED—INSET BEFORE RENOVATIONS



STUDY COURTYARD

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Bray Associates • Architects, Inc.

1807 Erie Ave.
Sheboygan, WI 53081

Geoffrey J. Bray, AIA
(920) 459-4200

Design team

Lawrence C. Bray
Principal-in-Charge

Geoffrey J. Bray, AIA
Design Architect

Mark Schuchardt, AIA
Project Architect

Sue Govier
Interior Designer

Client

Northland Pines School District
(715) 479-6487

Grade span
K-5

Current building capacity
325

Current building area
48,000 square feet

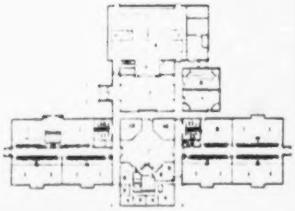
Total project costs
$3.5 million

Cost per square foot
$73

Space per student
148 square feet

Cost per student
$10,849

Completion date
August 1997



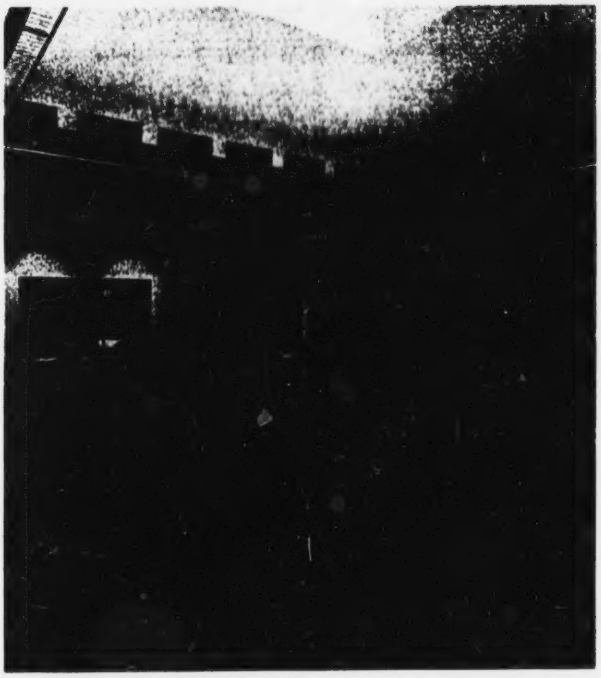
FLOOR PLAN

Northland Pines Elementary School
St. Germain, Wisconsin

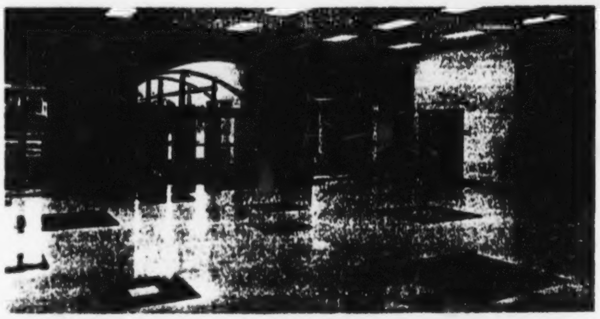
Bray Associates • Architects, Inc.

This northern Wisconsin school district wanted to build a new K-5 elementary school that harmonized with the natural beauty of its heavily wooded majestic pine site. Pitched roofs and a rustic, yet maintenance free, exterior were a solution that symbolized the ambiance of the North Woods, yet provided energy efficiency. The exterior of the building is highlighted by two front entrances, doorways at the end of the two education wings, rich, dark brown block walls, and green shingles and trim, giving the school a true North Woods look.

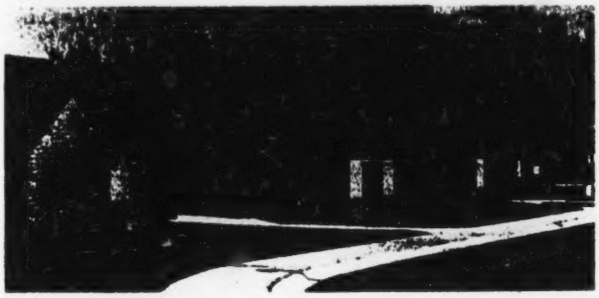
The central core of the school contains the IMC, distance learning and computer labs, a cafeteria, art and music rooms, and a gym. Several unique design concepts were implemented in this school:



MEDIA CENTER



COMMONS



PRIMARY ENTRANCE

- Unisex parent/student rest-rooms;
- Handicapped facilities for special needs;
- A kitchen area between kindergarten classrooms;
- Building capabilities for allday kindergarten; and
- The multipurpose room and the gymnasium can both use a stage, located between the two areas, by removing a portable wall.

Due to the remote location of this northern Wisconsin city to large urban centers, the use of the building by the community was a major component in the planning process. The core facilities were designed for community access for adult education and civic/social events, without giving the public access to the classroom wings. ■

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Kingscott Associates, Inc.

229 E. Michigan, Suite 335
Kalamazoo, MI 49007

Nancy Struck
(616) 381-4880

Design team

Robert McGraw, AIA
Project Director

Lee Andrea, AIA
Project Manager

Peter Sarelis, AIA
Design Architect

Laura Sarelis
Interior Designer

Tim Wedel
Project Coordinator

Ed Pfannes, PE
Mechanical Engineer

Ghassan Ghareeb
Electrical Engineer

Client

Fremont Public Schools
(616) 924-2350

Grade span
1-3

Current building capacity
600

Current building area
79,880 square feet

Total project costs
$7.3 million

Cost per square foot
$91

Space per student
133 square feet

Cost per student
$12,167

Completion date
September 1997

1998
GRAND PRIZE WINNER
LEARNING BY DESIGN

Pathfinder Elementary Fremont, Michigan

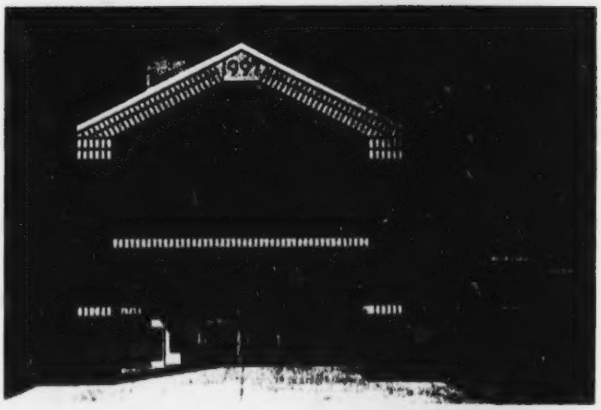
Kingscott Associates, Inc.

Pathfinder supports multiage instruction and team teaching within a family-like environment. Staff and administration also wanted to establish consistency for the students, generating trust and cooperation—key elements for successful teaming.

The design response is a building containing four pods, each housing two first-, second-, and third-grade classes, totaling 150 students. The four "schools within a school" form a pod "family" that remains intact for all three years to foster confidence, security, and strong relationships.

Pods feature their own entrances, classroom pairs, common space, staff planning/kitchenette space, computer labs, special-education rooms, counseling space, and storage. The building arrangement also allows block scheduling for art, music, physical education, computers, library, and remediation, creating a common staff planning period while the pod family is elsewhere in the building.

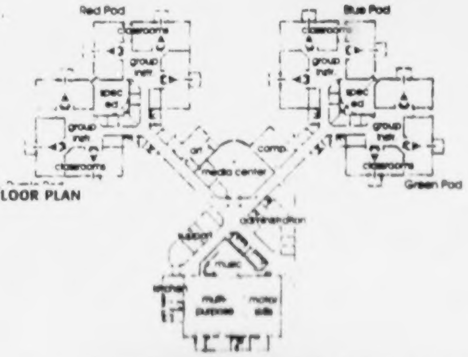
Intra-pod teaming also occurs, with all teachers involved in a first-grade reading program. In addition, there is a common time for students to pursue activities especially suited to their needs and/or interests.



FRONT ENTRANCE

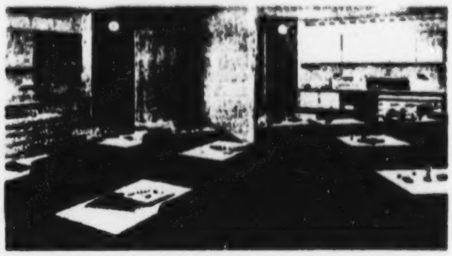
At the heart of the building is the media center, which has access to a courtyard that includes an outdoor classroom with seating and "stage" area. Gym/cafeteria and music spaces are at the front of the building for after-hours use by community groups and district teams. ■

CORRIDOR/WASHROOM



FLOOR PLAN

ART ROOM



SPECIAL EDUCATION CLASSROOM

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Phoenix Capitol Elementary School
Phoenix, Arizona

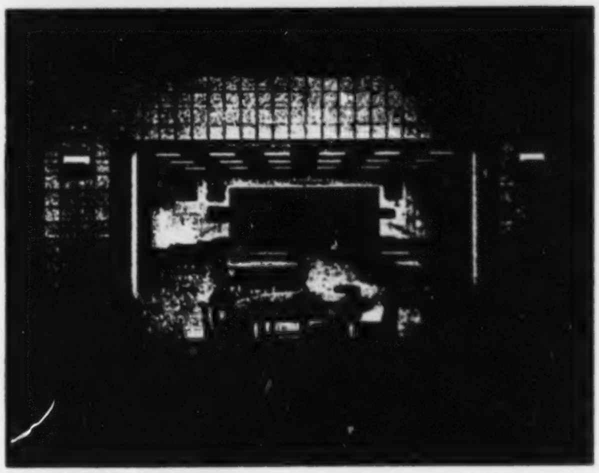
The Orcutt/Winslow Partnership

When Phoenix Capitol Elementary school decided to build a new facility, it had more to consider than its educational program. After more than 60 years on the same site, the school had become a stabilizing force in this inner city neighborhood.

Accustomed to walking their children to and from school, parents often stayed to socialize with neighbors. By designing a new campus that met the needs of both the students and the neighborhood, the district successfully kept a community and a tradition intact.

Because of the social significance, the courtyard became the focal point for the campus. An outdoor, covered play area opens on to the courtyard with a structure high enough to accommodate a game of basketball. On the opposite side of the play area, the cafeteria/multipurpose building features large roll-up doors to facilitate use of the outdoor area for cafeteria seating or as an expansion of program space.

ENTRY COURTYARD


INDOOR/OUTDOOR DINING AREA

Educational structures surround the entry court and provide a barrier to traffic that runs along the perimeter of the campus. Facing inward on the campus, classroom clusters provide for small student groupings around interior multiuse common areas. Virtually all of the interior walls of the classrooms retract for maximum flexibility.

At the center of the academic area on campus is the media center. At the top of this building is an open structure dome—painted a soft yellow to blend with the many trim colors of the campus—that pays homage to the school's namesake and neighbor, the Arizona state capitol building. ■

LIBRARY

The Orcutt/Winslow Partnership

1130 N. Second Street
Phoenix, AZ 85004

Paul Winslow
(602) 257-1764

Design team

Paul Winslow, FAIA
Partner-in-Charge

Chuck Hill, AIA
Associate/Team Leader

Client

Phoenix Elementary School District
(602) 257-3755

Grade span
K-6

Current building capacity
515

Current building area
66,140 square feet

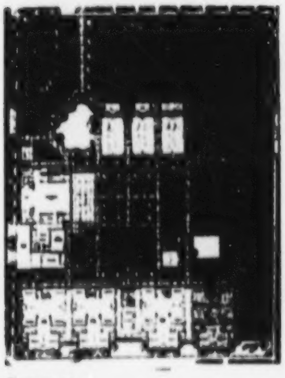
Total project costs
$5.8 million

Cost per square foot
$88

Space per student
128 square feet

Cost per student
$11,262

Completion date
May 1997


SITE PLAN

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Ashley McGraw Architects

500 S. Salina Street
Syracuse, NY 13202

Sandra March
(315) 425-1811

Design team

David C. Ashley, AIA
Edward L. McGraw, AIA
Partners

Karin Kilgore-Green, RA
Peter Larson, RA
Project Architects

Daniel Heukrath, RA
George Green, AIA
Steven Dimovski
Project Team

Client

Syracuse City School District
(315) 435-4161

Grade span
K-8

Current building capacity
700

Current building area
90,000 square feet

Building area before addition/renovation
54,000 square feet

Total project costs
$7.3 million

Cost per square foot
$81

Space per student
129 square feet

Cost per student
$10,364

Completion date
December 1995

Roberts Elementary School Syracuse, New York

Ashley McGraw Architects

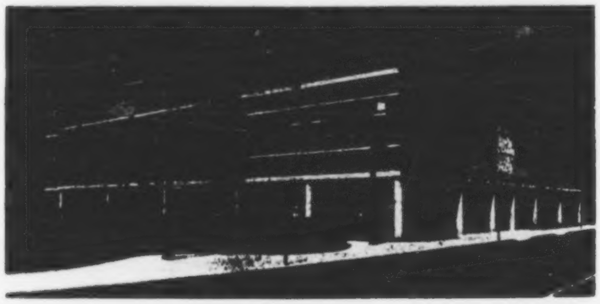
Roberts Elementary School, located in Syracuse, was built in 1926 as a neighborhood school. As the surrounding neighborhood grew, the school could not accommodate increasing enrollment, creating the need for an addition and substantial renovation. Ashley McGraw Architects worked closely with the school district, the city, and the building committee to develop a program and design strategy to enhance Roberts School's learning environment.

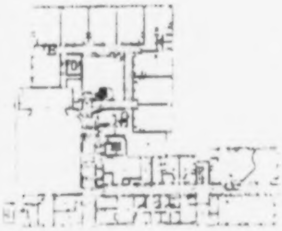
The primary goal was to provide a sense of place within the school. A two-story skylit commons, used also as an alternative instructional space, is the focal point of the project. The commons connects the new main entry and overall building circulation with the media center, computer room, and art room on the first floor and the new classrooms on the second floor.

All existing classrooms were completely renovated, including refinishing wood floors, replacing windows and lighting, and adding classroom storage. The entire facility is handicapped accessible. Updates include all new finishes, insulated exterior walls, a new roof, and new electrical and mechanical systems. Other renovations include a cafeteria and new serving kitchen, a refurbished gymnasium with a new stage for performances, administrative offices, reorganized car and bus access, expanded parking, and new playground and play fields. ■

COMMONS

ADDITION AND EXISTING BUILDING


EXTERIOR OF EXISTING BUILDING WITH ADDITION


FLOOR PLAN

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Anderson LaRocca Anderson

22 Purchase Street
Rye, NY 10580

Allan Anderson, AIA
(914) 967-3494

Design team

Steve LaRocca, AIA
Partner-in-Charge

Barbara Anderson, AIA
Allan Anderson, AIA
Design Partners

Peter Spagnuolo
Project Architect

Werner Teitjen
Mechanical/Electrical Engineer

Thune Associates
Structural Engineer

Eberlin and Eberlin
Civil Engineers

Client

New York City School
Construction Authority
(718) 472-8000

Grade span
K-6

Current building capacity
460

Current building area
49,000 square feet

Building area before
addition/renovation
32,000 square feet

Total project costs
$8.5 million

Cost per square foot
$265

Completion date
January 1996

Jackie Robinson (PS #15) Queens, New York

Anderson LaRocca Anderson

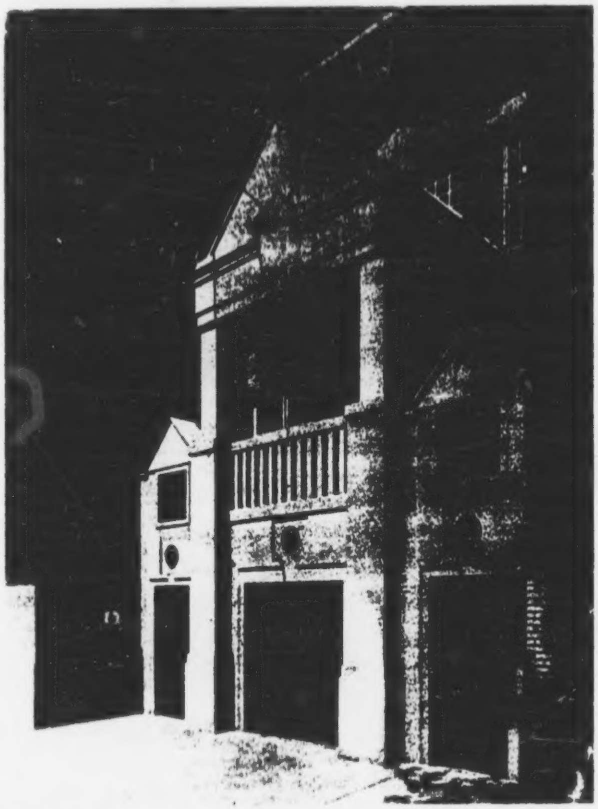
The Jackie Robinson School, located in the Springfield Gardens section of Queens, N.Y., serves 460 students in grades kindergarten through six. The original building is a threestory, 31,400-square-foot structure clad in brick with stonework along its front facade. It is a building formulated for the "cells and bells" approach to education, with little or no attention paid to the world of a child's impressions or to the context of a neighborhood.

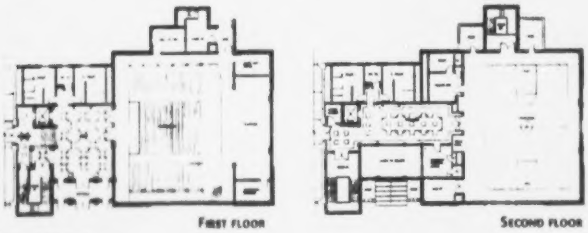
The construction program required a new lobby, gymnasium, and auditorium, along with support spaces such as toilets, offices, and circulation, including an elevator to provide complete accessibility for the handicapped. The underlying task was to provide a sense of place and to bridge, literally, the old with the new.

Visitors enter the new addition via an approach along the existing park. The lobby is a bold and dramatic two-story space set between the existing building and the new wing. On the ground floor, the lobby serves as a grand entrance providing formal access to the auditorium and the existing building, including the elevator and stairs to the upper levels. A connector bridge above spans the lobby and makes for an adventurous excursion from classrooms to the gym. The space is filled with playful forms, evocative of the wanderings of a child's imagination with squares, circles, upside-down stairs, clocks as eyes, and flying bridges. Rich, vibrant colors further enhance the space, highlighted with natural light from high above.

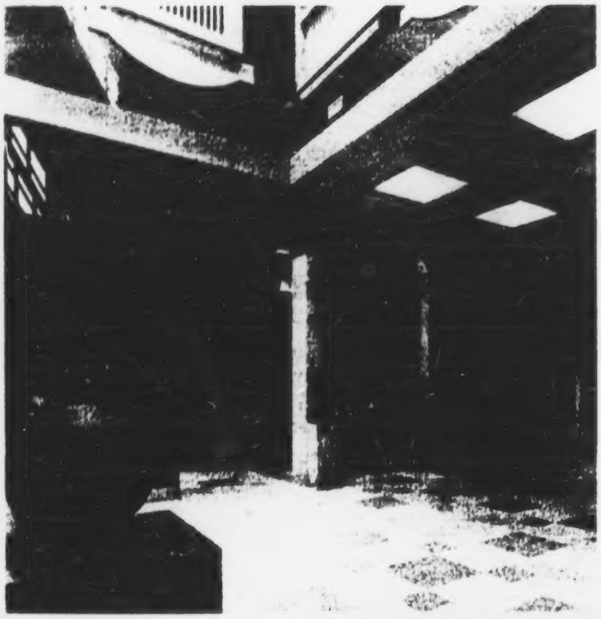
AUDITORIUM LOBBY

The auditorium seats 300 and is state-of-the-art for New York City primary schools. The design is a rhythmic performance of lively colors and geometric forms that serve as an integral framework for enhanced acoustics, sight lines, and


SOUTH ENTRY


FIRST FLOOR
SECOND FLOOR

FLOOR PLANS



Auditorium lobby

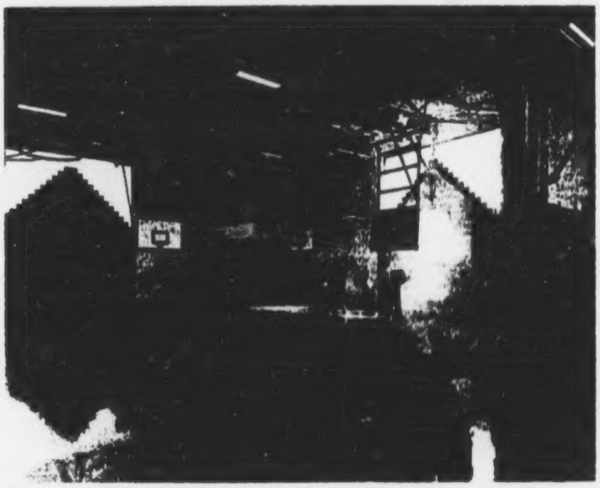
lighting. Recesses along the perimeter walls proudly display students' original ceramic tile artworks depicting scenes written by Pulitzer Prize winning author Maya Angelou. Adding to the atmosphere of a performance is a pair of gabled colonnades that define the seating area and bring an element of stage setting into the audience.

The gym is fully equipped for children of this age group, and includes set-ups for basketball and volleyball. The space is filled with natural light from above on three sides. Windows are framed by brick and stone gables constructed to appear floating in a field of transparent glass block. The atmosphere is light, and the mood joyful.

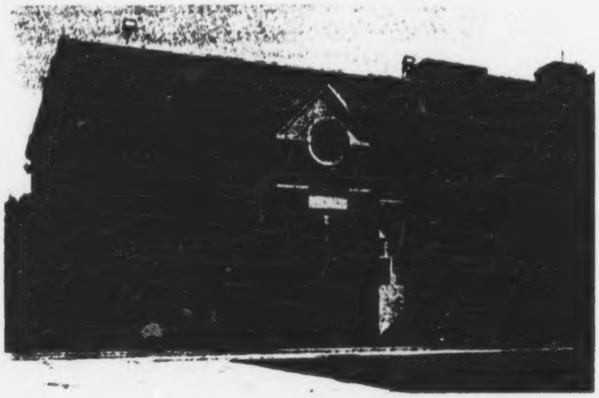
The exterior is clad in brick and adorned with stone bands, cornices, and trim, including various shapes that recall the scale and imagery of the surrounding homes. Overall, the architecture of the new addition is a tribute to traditional proportion and form interpreted in a contemporary style. The result is a building that is relevant to both students and community, a building that can be viewed with pride and that stimulates inspiration.

A quote from an article published by the client sums up the entire project. The quote beckons people to "Enter an architectural fantasyland!" ■

Auditorium



Gymnasium



Exterior

ELEMENTARY SCHOOLS
INTERIOR DESIGN

DiCara Malasits and Rosenberg Architects

99 Essex Street
Maywood, NJ 07607

Lloyd A. Rosenberg, AIA
(201) 368-1616

Design team

Joseph A. DiCara, AIA
Designer/Principal

Gregg Stopa
Production

Client

River Edge Board of Education
(201) 261-3408

Grade span
K-6

Current building capacity
24

Current building area
1,247 square feet

Building area before addition/renovation
1,247 square feet

Total project costs
$150,000

Cost per square foot
$120

Space per student
52 square feet

Cost per student
$6,250

Completion date
September 1995

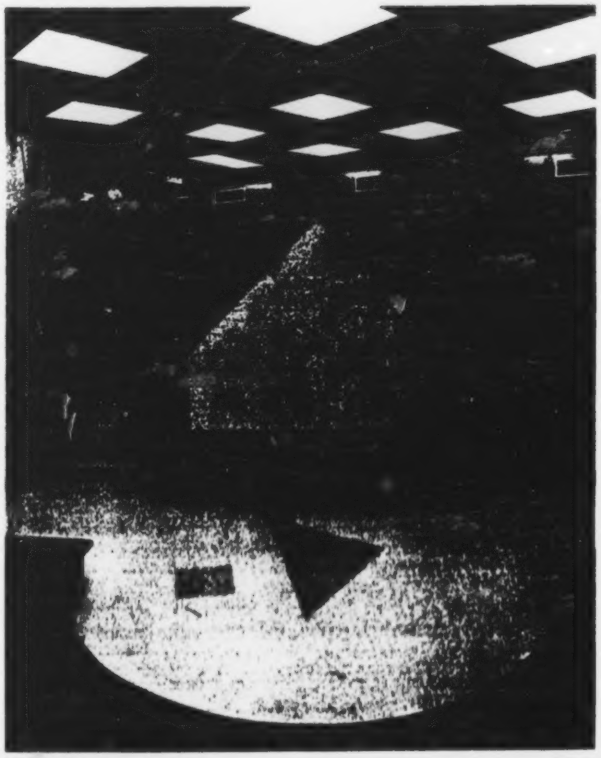
FLOOR PLAN

Roosevelt Elementary School
River Edge, New Jersey

DiCara Malasits and Rosenberg Architects

The unique Science Discovery Classroom designed for the Roosevelt Elementary School in River Edge, N.J., involved renovating an unused storage/locker room in the basement of the school. DiCara Malasits and Rosenberg Architects used the available 1,200 square feet of space to create an interactive learning center that encourages hands-on science exploration. This room, the first of its kind developed for elementary-level students, provided the impetus for River Edge to forge ahead into technology that is representative of the 21st century.

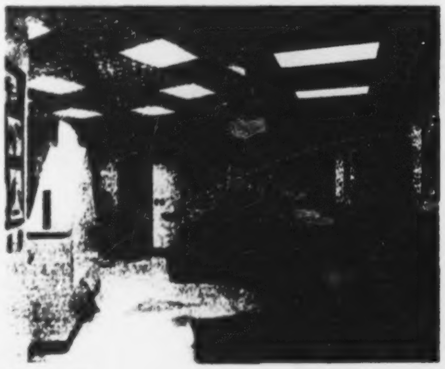
The project marked the beginning of the district's effort to enhance its curriculum and facilities. The room features computer stations, a raised amphitheater for multimedia presentations, a computerized weather station, and a seven-foot terrarium where students will develop a wetlands environment.



DISCOVERY ROOM DETAIL

Presenting students with an exciting atmosphere that is interesting and inviting, both aesthetically and educationally, the classroom accomplishes the school district's goal of relating science to everyday life. For example, mechanical systems in the ceiling are exposed to demonstrate how the building is heated and cooled.

The vividly decorated room is visually stimulating and technologically advanced, which helps the teachers create a state-of-the-art curriculum. ■



STORY AREA

DISCOVERY ROOM

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

BASCO Associates

445 W. Philadelphia Street
York, PA 17404

Harry R. Rutledge, AIA, RIBA
(717) 852-1400

Design team

Harry R. Rutledge, AIA
Principal

Andy L. Kitsinger, AIA
Architect

Michael Miller, PE
Mechanical Engineer

James Sanford, PE
Electrical Engineer

Frank Miklavcic, PE
Structural Engineer

Reynolds CM
Construction Manager

Client

Schuylkill Valley School District
(610) 926-1706
Craig Strunk Dir., Buildings & Grounds

Grade span
K-5

Current building capacity
1,075

Current building area
112,000 square feet

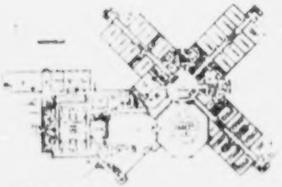
Total project costs
$8.1 million

Cost per square foot
$72

Space per student
104 square feet

Cost per student
$7,520

Completion date
September 1995



FLOOR PLAN

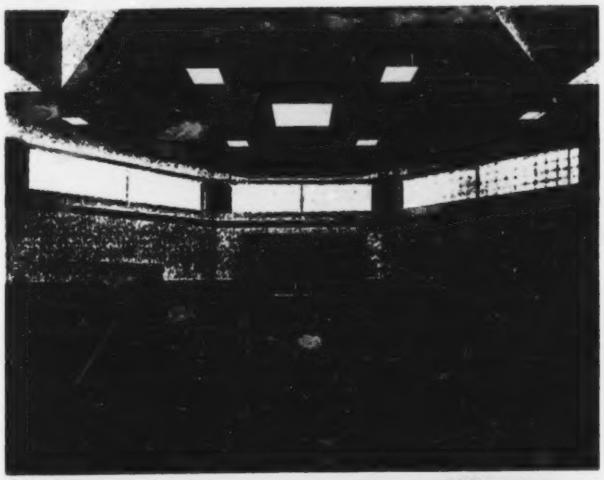
Schuylkill Valley Elementary
Leesport, Pennsylvania

BASCO Associates

The new Schuylkill Valley Elementary School rises among the rolling hills of Central Pennsylvania. The school sits inside a 62-acre campus that also includes a high school, an intermediate school, parking, playgrounds, and athletic fields. An entrance courtyard greets students as they leave the bus drop-off and leads to the octagonal entrance lobby.

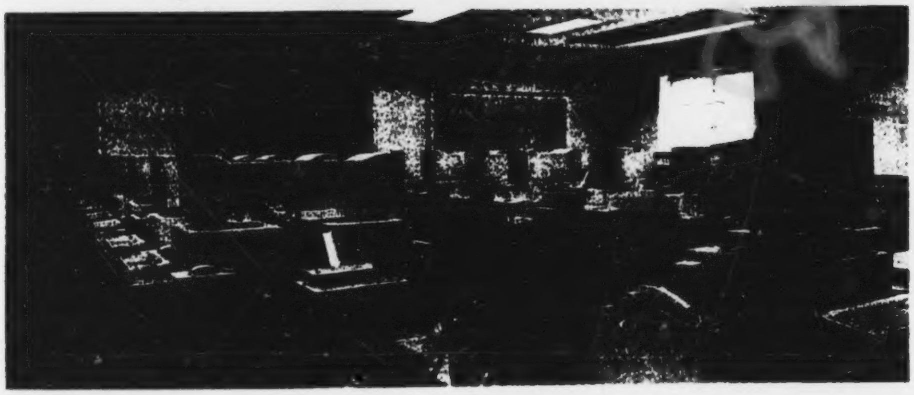
Although it is large by elementary school standards, the Schuylkill Valley Elementary School is designed to give youngsters a sense of place by grouping grade levels in separate wings around a commons. With two grade levels per wing, students gain an opportunity to know each other and become more comfortable within one of three wings that make up the large structure. The "schools-within-a-school" concept has been very popular with parents, teachers, and students.

A common wing serves all grade levels with a cafeteria, a multipurpose room, a library adjacent to the commons, and designated study areas for music, art, and computers. ■



COMMONS

EXTERIOR



COMPUTER ROOM

427

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates
222 Lakeview Ave., Suite148
West Palm Beach, FL 33401
(561) 697-3660

Design team

Raymond L. Manning, AIA
Principal-in-Charge

René Tercilla, AIA
Project Architect/Designer

Client

The School Board of St. Lucie County
(561) 468-5021

Grade span
Pre-K-5

Current building capacity
896

Current building area
101,252 square feet

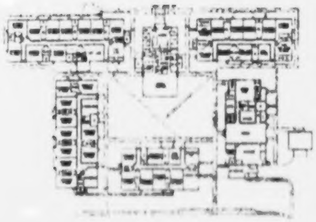
Total project costs
$6.6 million

Cost per square foot
$65

Space per student
113 square feet

Cost per student
$7,384

Completion date
May 1996



FLOOR PLAN

St. Lucie Elementary School Fort Pierce, Florida

Fanning/Howey Associates

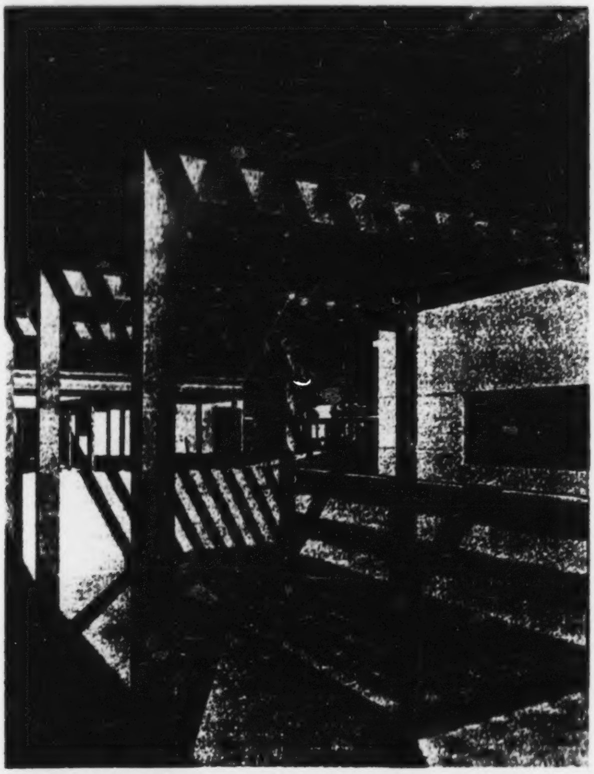
Facing the need for functional and basic infrastructure upgrades at St. Lucie Elementary School, the School Board of St. Lucie County contracted Fanning/Howey Associates, Inc. to complete an assessment of the condition of existing facilities and to define educational program deficiencies attributable to the facility.

This facility was originally designed in the 1950s as a junior high school in a rather inexpensive manner but subsequently evolved into being used as an elementary school. After extensive studies on the condition of the structure and its systems, an evaluation of the educational program available to educators and students based on the existing facility was conducted. This part of the study was quickly concluded due to the immense impact on educational opportunities because of the inadequate size and type of spaces available.

OVERALL EXTERIOR, MAIN ENTRY

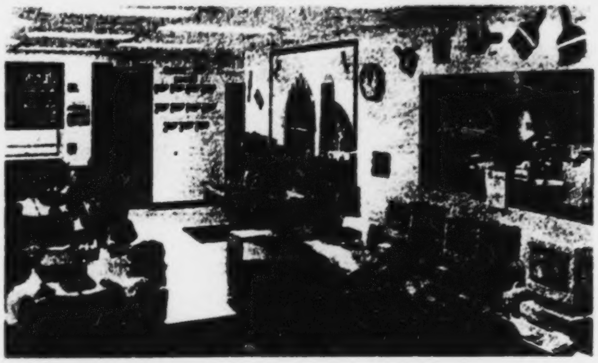
Objective and realistic estimates showed that addition and renovation costs would approximate 80 percent of the cost of new construction. Given the overall shorter life expectancy of such modifications, the higher initial cost of replacement was deemed a wiser use of funds. The school district, however, still faced a shortage of assigned funding due to the unexpected increase

EXTERIOR COURTYARD



THE OUTDOOR WALKWAYS INCLUDE AN ENCLOSED, CANOPIED WORK AREA FOR THE ART ROOM.

ART CLASSROOM



KINDERGARTEN CLASSROOM

in scope. To afford replacement, the 895-student facility of approximately 101,000 square feet and demolition/abatement of the existing facility was to be completed for under $65 per square foot.

Given the logistics of abating and demolishing an existing facility before a new one could be built, the design solution was focused on function, effective use of funds, and rapid construction methods.

The design solution features a series of independent buildings that enclose a central courtyard. In order to maximize savings and aid in the rapid development of construction, most buildings and their structural/mechanical elements where kept consistent. Kindergarten, primary, and intermediate grade level classroom buildings include exceptional student education spaces and are each assigned an individual primary color. This simple assignment of color provides an inexpensive improvement of aesthetics, while helping the elementary student develop familiarity with differing campus areas.

Classroom buildings consist of double-loaded educational spaces divided by internal air-conditioned corridors. Coupled with the overall courtyard layout, greater control of children and outside visitors is achieved.

Main shared student areas such as food service, music, and media incorporate all assigned primary colors and are accessed directly from the courtyard. This provides shorter travel distances for students from most areas. ■

MUSIC ROOM

254 429

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.
3750 Priority Way S. Drive, #110
Indianapolis, IN 46240
(317) 848-0966

Design team

Daniel R. Mader, AIA
Principal-in-Charge

Charles R. Tyler, AIA
Project Manager

Cheryl C. Whittenbarger, AIA
Project Architect

Mark D. Murphy
Project Coordinator

David D. Frash, PE
Structural Engineer

Ronald J. Hunt
Mechanical Designer

Alvaro Villalta, EIT
Electrical Designer

James K. Perkins, ASLA
Landscape Architect

Nancy J. Christoph, ASLA
Site

Client

Community Schools of Frankfort
(765) 654-5585

Grade span
K-5

Current building capacity
650

Current building area
81,549 square feet

Total project costs
$9 million

Cost per square foot
$111

Space per student
125 square feet

Cost per student
$13,876

Completion date
November 1996

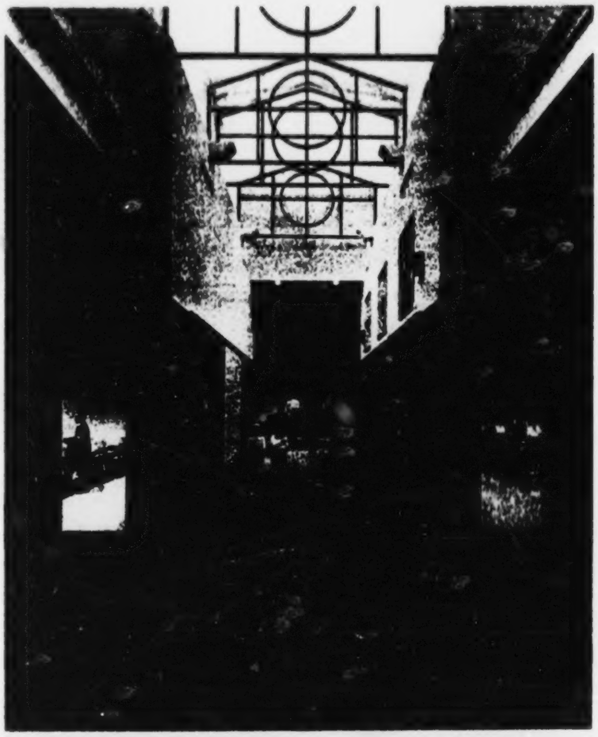
Suncrest Elementary School
Frankfort, Indiana

Fanning/Howey Associates, Inc.

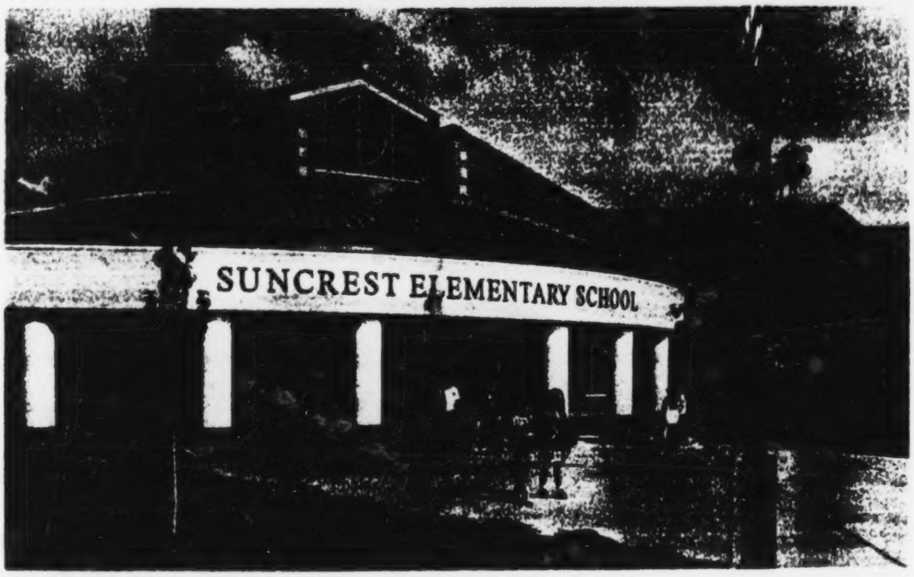
This 81,549-square-foot facility was constructed in response to the immediate problem of deteriorating elementary facilities in the city of Frankfort. Feasibility studies had been done on both of the existing elementary schools, and it was determined there was no way to sufficiently incorporate technology into them.

Designed for 650 students in grades K-5, Suncrest Elementary School replaces Lincoln and Woodside elementary schools. To preserve the memory of the two schools, a limestone eagle from Lincoln Elementary School and a cornerstone from Woodside Elementary School are incorporated in the main corridor of Suncrest.

Housing grades K-5, Suncrest is structured so there is separation of activity spaces from the academic/quiet classroom spaces, allowing for con-

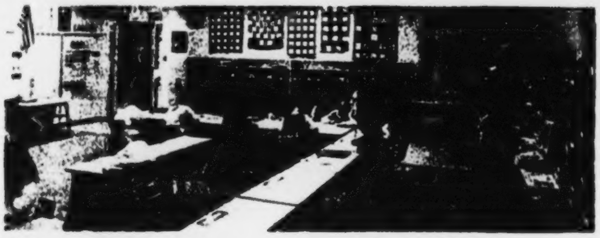


CORRIDOR WITH PERIMETER CLASSROOMS. SKYLIGHT DETAIL IS DRAMATICALLY VISUAL AND SERVES TO LIGHTEN THE SPACE.

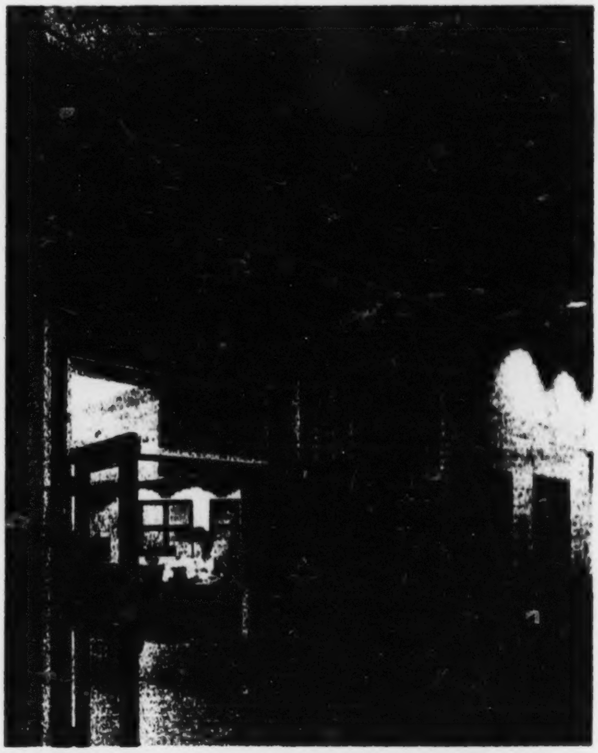


EXTERIOR FRONT ENTRY

Media center



Typical classroom



Entry to the libary/media center. The limestone eagle was rescued from the original elementary building.

current instruction in both areas.

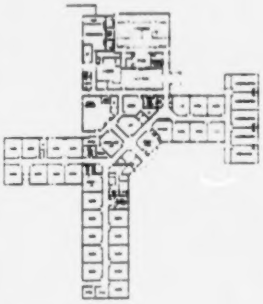
The facility is composed of four wings, with double-loaded corridors in three of the wings for academic instruction. The grade levels are paired within the wings to allow for team teaching between grades, and small-group instruction rooms are located at the end of each wing allowing for instruction of 15 to 20 students or for independent study.

The entire building is equipped for computer technology, with each small-group instruction space having data outlets for additional computers.

The fourth wing houses the gymnasium and the cafeteria, while the core of the building is composed of the media center—which is the heart of the building—and the art, computer, and music rooms.

A community project room is located immediately past the building's front entrance. These areas are easily accessed from the other three wings since these spaces are utilized for instruction by all grade levels. This central space can be closed from the remainder of the building for evening use by the community. ■

The kindergarten classroom is scaled for small children with storage cubbies and easily accessible computers.



Floor plan

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

MKC Associates, Inc.

380 N. Main Street, Suite 500
Mansfield, OH 44902

Timothy W. Leist
(419) 525-1102

Design team

Timothy W. Leist
Principal-in-Charge

Todd R. Wrobleski
Project Architect

Dan W. Yard
Structural Engineer

Russell Betz
Mechanical Engineer

Craig G. Christie
Electrical Engineer

Wendy J. Mullins
Interior Designer

Richard J. Dye
Construction Coordinator

Client

South Central Local School District
(419) 752-3815

Grade span
K-8

Current building capacity
800

Current building area
76,905 square feet

Total project costs
$6.3 million

Cost per square foot
$81

Space per student
97 square feet

Cost per student
$7,819

Completion date
August 1997

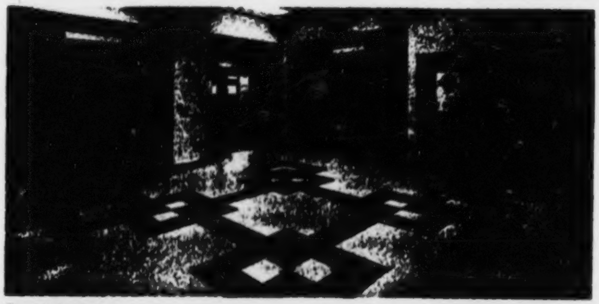
SITE PLAN

South Central Elementary/Junior High School Greenwich, Ohio

MKC Associates, Inc.

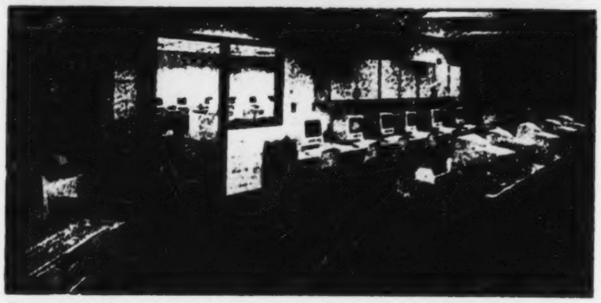
In 1993, the South Central School District was notified by the Ohio Department of Education to begin planning a new school. The new building would replace three deteriorating elementary schools and consolidate all of the district's facilities at one site that would be shared with the existing high school. The state of Ohio funded 73 percent of the cost, with the district providing the remainder through the passage of a bond issue.

Program requirements called for a design that utilizes three separate classroom wings. Individual wings for grades K-2, 3-5, 6-8 provide for the proper mix of the different age groups. The media center, computer lab, and fiber-optic distance learning center are located at the hub of these three wings. The sixth- through eighth-grade wing has a separate entrance, while K through second-grade and third- through fifth-grade share their own entrance. The administrative offices are located in shared space between the two entrances. The music department, gymnasium, and cafetorium are located at the southern portion of the building. This arrangement makes it convenient for that portion of the building to be used by the community.



ENTRY LOBBY

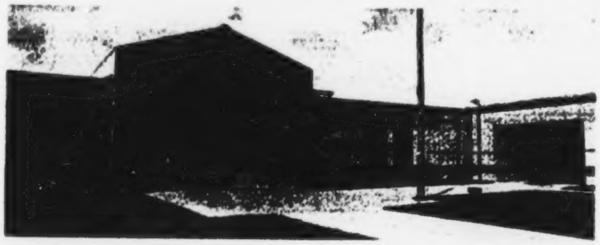
SCIENCE ROOM



COMPUTER LAB

The various wings are color-coded within the building. Creative tile patterns with key colors are utilized throughout the structure to designate the grade levels. Common areas such as the lobby and cafetorium use colors from all the wings and school colors in a creative six-color pattern.

An innovative feature of this building is its mechanical system. The entire building uses an electric geothermal system to satisfy the design requirements for the proper heating and cooling of the facility. A heat-recovery system and computerized energy-management system complete the mechanical systems. ■



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

The Ray Group Inc.

127 E. Orange Street
Lancaster, PA 17602

Rena C. Grimmer
(717) 392-6502

Design team

Michael R. Patton, AIA
Project Director

Bonnie M. Sowers, AIA
Project Manager

Donald D. Searle, AIA
Project Architect

Richard H. Krumrine
Project Designer

Client

Cumberland Valley School District
(717) 697-8261

Grade span
K-5

Current building capacity
700

Current building area
80,240 square feet

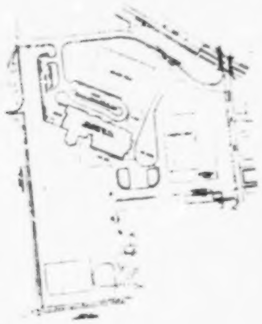
Total project costs
$8.4 million

Cost per square foot
$105

Space per student
115 square feet

Cost per student
$12,021

Completion date
October 1996



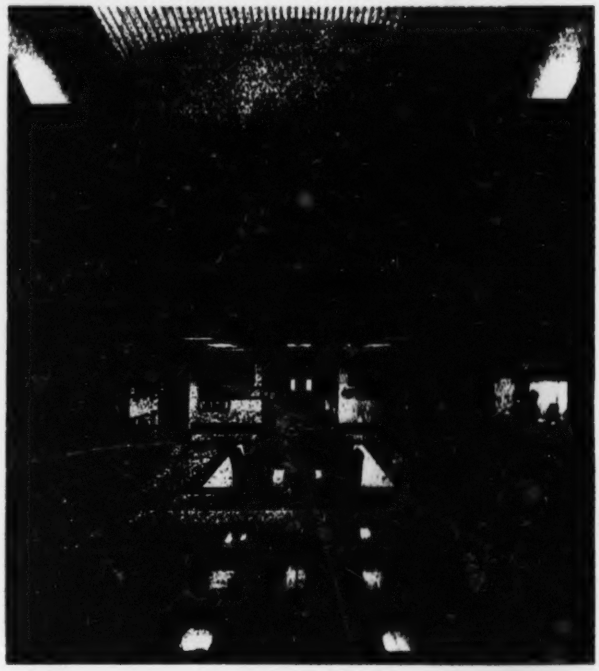
SITE PLAN

Sporting Hill Elementary School
Mechanicsburg, Pennsylvania

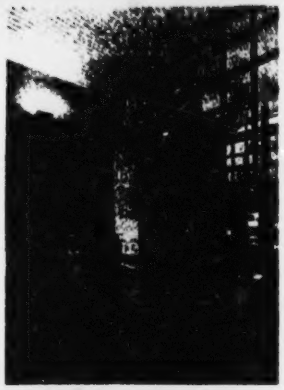
The Ray Group Inc.

The Cumberland Valley School District continued its capital expansion and improvement plan with the destruction of an existing facility following the construction of this new elementary school within several feet of the original building. The new school had to be extremely compact to permit joint use of the small site until the final demolition. The two-story building contains a core of common spaces flanked by a ring of classrooms that can accommodate shifts in grade structure facilitated by mutual adjacency. The importance of multiple use and adaptation of space led to a district innovation: the creation of a two-sided stage that functions from both sides, accommodating different size audiences as well as functioning as a classroom.

Simple, overscaled decorative objects and forms provide character to this building, which can be best appreciated either from an adjacent high-speed interstate or from a public park and pool that border the project site. Elongated vertical fenestration and a large, single-vaulted entry clerestory frame are illusions to create an exterior envelope that denies the inherent compactness of the building. Simple interior colors highlight the profusion of temporary student artwork on display in the circulation "galleries," which culminate in the stair towers. The towers take on a dramatic impact by a singular reinforcement of the school's color (red). Similarly, the Sporting Hill "Bulldogs" are boldly evident throughout this facility, where major educational objectives and doctrine will be given new opportunity for growth. ■



LOBBY



VESTIBULE

EXTERIOR

ELEMENTARY SCHOOLS
PROJECT IN PROGRESS

Muller & Caulfield Architects

339 15th Street, Suite 300
Oakland, CA 94612

Rosemary Muller, FAIA
(510) 832-8560

Design team

Rosemary Muller, FAIA
Principal

Pat McDermott
David Rulon
Project Architects

Moran Engineering
Civil Engineer

KPa
Structural Engineer

SJ Engineers
Mechanical Engineer

FW Associates
Electrical Engineer

Pattillo & Garrett Associates
Landscape Architects

Client

Berkeley Unified School District
(510) 644-4594

Grade span
K-5

Current building capacity
390

Current building area
44,000 square feet

Total project costs
$8.3 million

Cost per square foot
$188

Space per student
98 square feet

Cost per student
$18,444

Completion date
December 1999

SITE PLAN

CITATION AWARD WINNER

Thousand Oaks Elementary School Berkeley, California

Muller & Caulfield Architects

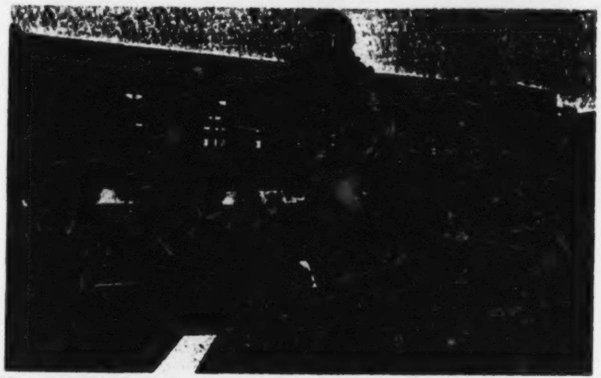
A new school was needed to replace an existing historic landmark. Meetings with the school district and community, as well as with local preservationists, evolved into a design responsive to the district's needs and sensitive to the neighborhood. Computer-generated 3D images and real-time "walk-throughs" helped the community visualize the new school.

Two classroom clusters are separated by the multipurpose room, library, and administrative area. The L-shaped classrooms create a special alcove as well as a protected patio for outdoor activities. The library's central location, sloped tile roof, and special detailing express its prominence in the educational process. The two-story multipurpose room is partially recessed below street grade to minimize its prominence, so it does not compete visually with the library.

The playground and park beyond are shared with the surrounding neighborhood. Careful grading of the gently sloping site allows the library to bridge over the main community access to the playground.

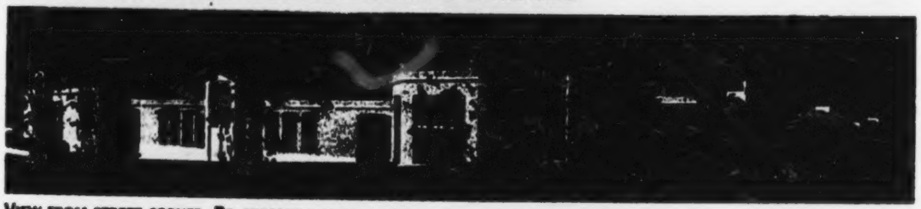
The new design recreates original historic elements, including wood beams, tile roofs, and an entire favorite kindergarten classroom. A design competition will let students and faculty design a new school "crest" to ornament the front of the library. ■

TYPICAL L-SHAPED CLASSROOM. CLASSROOM PATIO IS BEYOND THE WINDOWS.



VIEW BELOW LIBRARY BRIDGE, TOWARDS PLAYGROUND BEYOND

THE K-2 COURTYARD, COVERED WALKWAYS AND RECESSED CLASSROOM PATIOS



VIEW FROM STREET CORNER. RE-CREATED HISTORIC KINDERGARTEN IS IN FOREGROUND.

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

James Tillman Elementary School
Palmetto, Florida

Barger + Dean Architects, Inc.

Barger + Dean Architects, Inc.

227 Central Ave.
Sarasota, FL 34236

Kenneth G. Dean
(941) 365-6056

Design team

Kenneth G. Dean
Vice President

David Wildes
Senior Project Architect

Client

Manatee County School Board
(941) 741-7200

Grade span
K-5

Current building capacity
662

Current building area
85,764 square feet

Total project costs
$6.9 million

Cost per square foot
$80

Space per student
130 square feet

Cost per student
$10,356

Completion date
August 1996

This project is a replacement facility for an existing 40-year-old school. The development of this new school design is reflected in the concern for security for both school staff and students and appeal as a family-friendly campus. One of the purposes of the initial meetings with the design architects, school staff, and parents was to define, in a few words, what they all wanted this school to be: "a fun place."

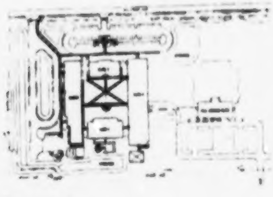
The new school design has a combination of single- and two-story school buildings surrounding a central courtyard due to a restricted building area. The classroom buildings were designed with interior corridors for control of student circulation, student and staff security, and indoor air quality. The point of entry was the focal structure of the bell tower, which assisted in informing visitors they must enter through the front door gates.

The structural system is load-bearing masonry units, concrete block, veneer split face block, and stucco. The roof system is structural steel trusses with roof purlins, metal decking, insulation, and a galvalum metal roof panel.

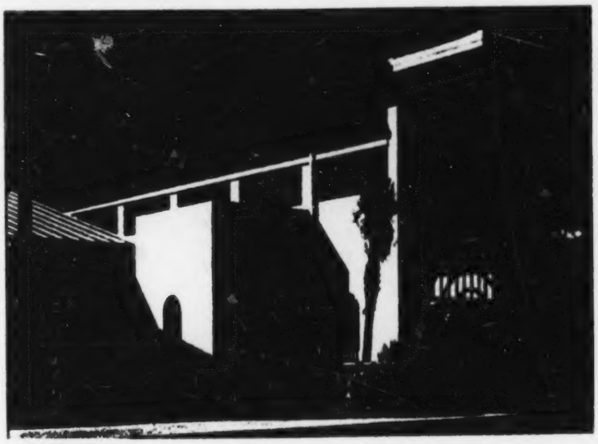
The mechanical system is a central chilled-water system with distribution to remote air-handling equipment. ■

COLONNADE

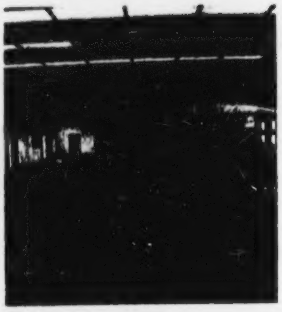
ADMINISTRATION



SITE PLAN



FRONT ENTRANCE



MULTIPURPOSE ROOM

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Hayes Large Architects

Logan Blvd. & Fifth Ave.
Altoona, PA 16602

Richard L. Karcher, AIA, REFP
(814) 946-0451

Design team

Richard L Karcher, AIA, REFP
Partner-in-Charge

S. Dwight Knouse II, AIA
Project Manager

Mark A. Trimbur, AIA
Designer

Client

Central Greene School District
(412) 627-8151

Grade span
K-5

Current building capacity
1,275

Current building area
121,000 square feet

Total project costs
$13.1 million

Cost per square foot
$109

Space per student
95 square feet

Cost per student
$10,290

Completion date
January 1997

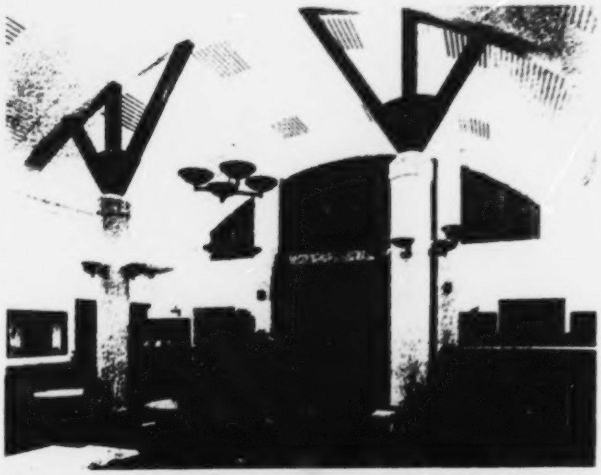
Waynesburg Central Elementary School Waynesburg, Pennsylvania

Hayes Large Architects

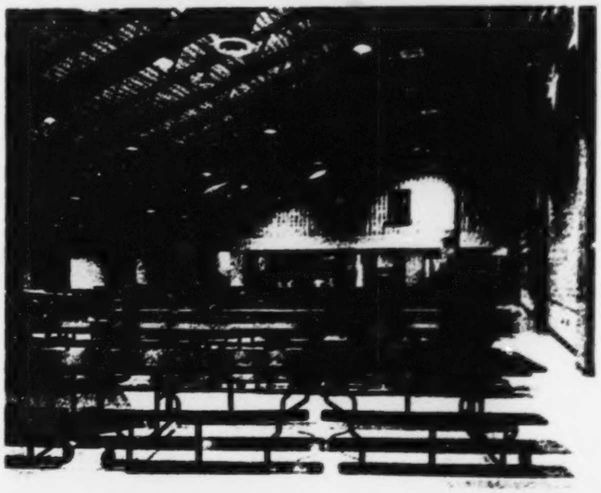
This new elementary school consolidates the population of three antiquated schools into one facility, enabling the district to minimize staffing and transportation costs. The savings allowed them to build a wide range of specialized spaces, including state-of-the-art rooms for art and music, a library, and a physical education area—all of which were not included in any of the previous schools.

Due to the limited, steeply sloping site, a three-story structure was designed with the main entrance on the middle level for easier access and circulation. Smaller scale, gabled forms and a sloped roof were used to further disguise what could become an imposing third level. The final design spares the existing ball fields and shares parking areas with the high school.

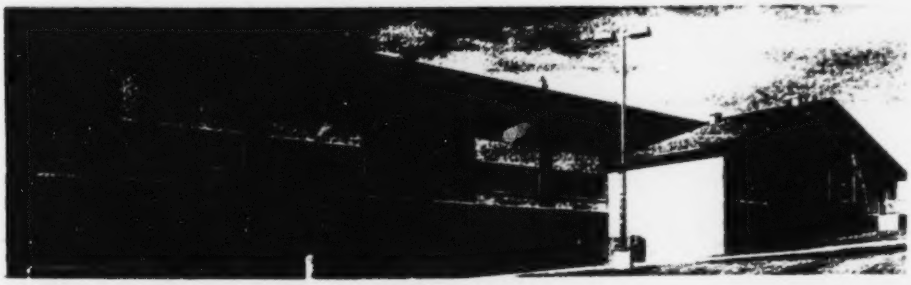
Each wing of eight classrooms houses one grade level providing efficiency and convenient use of shared resources. To minimize the impact of a three-story structure on internal traffic, all support and common-use areas are located on the middle level so students and teachers only need to travel one flight of steps to access most services. ■



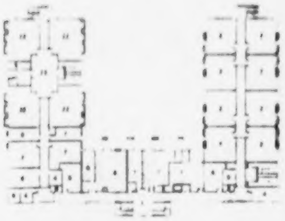
ABUNDANT LIGHTING FOR READING IS PROVIDED BY LARGE WINDOWS AND MULTI-LEVEL LIGHT FIXTURES IN THE LIBRARY/MATERIALS CENTER.



THE CAFETERIA AND GYMNASIUM SHARE A PUBLIC LOBBY THAT IS SEPARATE FROM THE OTHER SCHOOL ENTRANCES.



THE KINDERGARTEN COMMONS HAS ITS OWN ENTRY AND DROP-OFF AREA.



FLOOR PLAN

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Wm. B. Ittner, Inc.

611 N. Tenth Street, Suite 200
St. Louis, MO 63101

Dennis M. Young
(314) 421-3542

Design team

Dennis M. Young
Principal-in-Charge

Marty Collier
Designer/Project Manager

Dr. James Rosborg
Superintendent of Schools

Lee Triefenbach
Assistant Superintendent

Client

Belleville School District 118
(618) 233-2830

Grade span
K-6

Current building capacity
525

Current building area
71,250 square feet

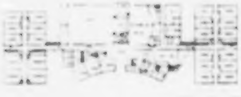
Total project costs
$6.8 million

Cost per square foot
$95

Space per student
136 square feet

Cost per student
$12,952

Completion date
Fall 1997



FLOOR PLAN

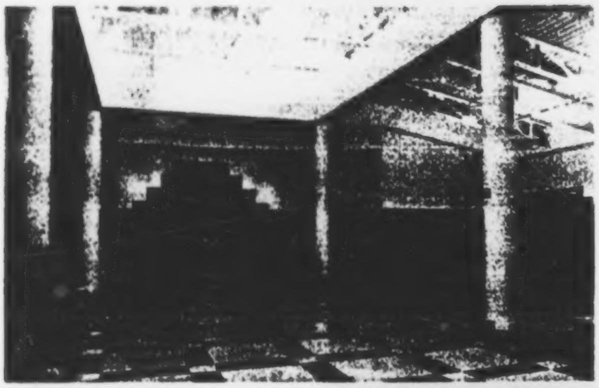
Westhaven Elementary School
Belleville, Illinois

Wm. B. Ittner, Inc.

The Westhaven Elementary School is the first new school built in Belleville School District 118 since 1962. The curved front elevation conveys a symbolic statement of friendliness to both students and community. The school entrance is defined by a 20-foot-high clerestory canopy that is expressed as an extension of the student commons area, bringing visitors directly into this important "activities crossroads." From this central location, immediate access can be gained to all school areas, including the computer room, gymnasium, stage, cafeteria/multipurpose room, art, music, counselor, and each grade-level pod.

The facility plan is carefully organized into grade-level pods that provide equal access to all support spaces through the student commons area. This design approach organizes the 71,250-square-foot building into smaller, more student-friendly learning environments for all ages. For multiple events, a dual-use stage has been designed to serve both the gymnasium and the cafeteria/multipurpose room. This physical arrangement enhances flexibility in using the large assembly spaces. Both the gym and multipurpose room are designed to serve a variety of activities, including physical education, performing arts, assemblies, and instructional programs. This is a unique school in the southern Illinois area. ■

STUDENT ENTRY



MULTIUSE STUDENT COMMONS AREA

LIBRARY/MEDIA CENTER

437

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

URS Greiner, Inc.

546 S. Meridian, Suite 714
Indianapolis, IN 46225

Richard W. Bay, AIA
(317) 636-7469

Design team

Richard W. Bay, AIA
Project Manager

Mark R. Bay, AIA
Project Architect

Kevin D. Harvey
Project Team

Client

Greenwood Community School Corp.
(317) 889-4060

Grade span
K-5

Current building capacity
540

Current building area
88,600 square feet

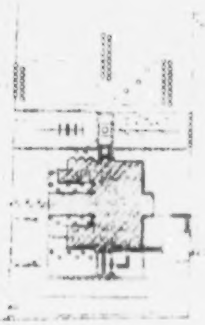
Total project costs
$8.4 million

Cost per square foot
$95

Space per student
164 square feet

Cost per student
$15,600

Completion date
July 1996



SITE PLAN

Westwood Elementary School Greenwood, Indiana

URS Greiner, Inc.

Westwood Elementary School, located in Greenwood, Ind., is a new K-5 elementary school with a design that was generated from staff and community input throughout the planning process. Traditional double-loaded corridor wings were chosen for the organization of the classrooms to allow for future expansion and to be in character with the community's existing elementary schools. The three classroom wings are structured along a main corridor that allows access to a center core of support spaces, such as art, music, computer instruction, special education, and a multipurpose room. The multipurpose room, centered within the building, provides before-school, after-school and community-use access. The center core is then anchored on the other side by the administration, media center, gymnasium, and cafeteria/kitchen areas.

Well-defined circulation patterns for younger children were achieved with color, volume, and natural light. The classroom wing corridors are highlighted by letter (A, B, C), symbol (triangle, square, circle), and color (green, blue, red). The main corridor is defined by natural lighting provided by clerestory and alcove gathering spots. Intermediate cross corridors are directional through the use of sloping ceilings detailed with colored grid and ceiling tiles.

The typical classroom is really the heart of the school's design. Each room is organized in a quadrant of functions. One quadrant is organized with student cubicle storage units behind a free-standing wall that contains a sink and casework. Diagonally opposite this is the computer corner, which creates six computer stations and small-group learning area separated again by a free-standing wall with casework. The third quadrant corner is dedicated to teacher desk, file, and phone. The remaining corner is definable by two large exterior windows that wash the area with natural light. ■

MURPHY STUDIOS INC

MEDIA CENTER/STORY TIME

CLERESTORY CORRIDOR

NORTH ELEVATION

438

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.
4101 McEwen, Suite 300
Dallas, TX 75244
Gary Keep
(972) 701-0700

Design team

Gary Keep
Officer-in-Charge

Bill Wadley
Designer

Kyle Bacon
Project Manager

Matt Brown
Project Architect

Joe Craddock
Structural Engineer

Jim Estes, MEP, Estes, McClure & Associates
MEP Engineer

Client

Rockwall Independent School District
(972) 771-0605

Grade span
Pre-K-5

Current building capacity
650

Current building area
65,500 square feet

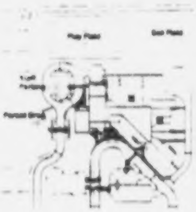
Total project costs
$6.3 million

Cost per square foot
$96

Space per student
101 square feet

Cost per student
$8,323

Completion date
August 1996



SITE PLAN

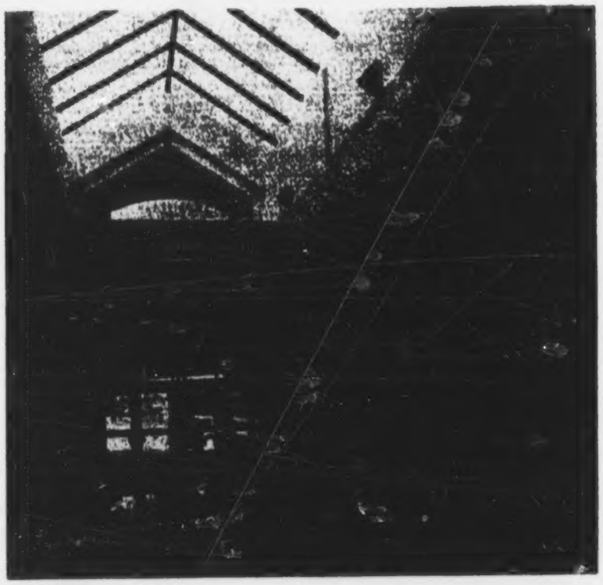
Nebbie Williams Elementary School Rockwall, Texas

SHW Group, Inc.

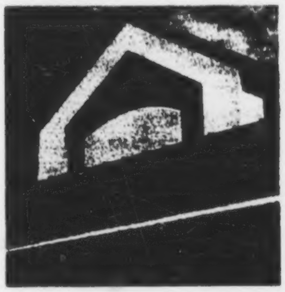
Rockwall Independent School District was striving to develop innovative classroom space for creative teaching methods. Located in a district that is experiencing growth, Nebbie Williams Elementary School allowed the district to incorporate all of its goals and desires for an innovative educational program into a new facility.

As in most suburban communities, the multipurpose use of a school building is essential. Both the gymnasium and dining area are designed to be used by the community either separately or at the same time. The remainder of the building can be secured, but restroom facilities are available at all times. The stage, located in the dining area, is ideal for public meetings, and it also is located with direct access to the music facility. The classroom design is unusual in this facility. The wall between two adjacent classrooms is irregular in shape to provide an unusual shaped classroom area. The irregular shape that was devised for this project allows students to gather in small groups and work on computers or other similar small group projects.

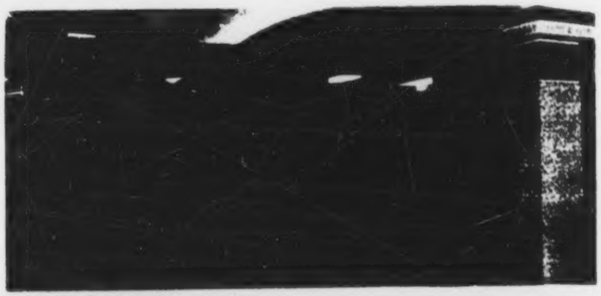
The school is nestled within a new residential community and was designed to reflect the character of the residences nearby. ■



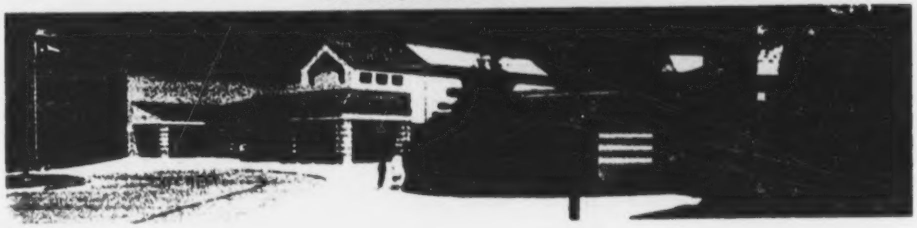
COMMONS



EXTERIOR DETAIL



COMMONS/ADMINISTRATION



FRONT ELEVATION

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Fletcher Thompson, Inc.
Two Lafayette Square
Bridgeport, CT 06604
James A. Beaudin, AIA
(203) 366-5441

Design team

James A. Beaudin, AIA
Principal-in-Charge

Chester A. Salit, AIA
Project Manager

Jeffrey A. Sells, AIA
Senior Design Architect

Client

Town of Wallingford
(203) 949-6504

Grade span
K-5

Current building capacity
550

Current building area
74,000 square feet

Building area before addition/renovation
31,795 square feet

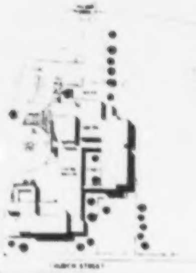
Total project costs
$9.9 million

Cost per square foot
$134

Space per student
135 square feet

Cost per student
$18,054

Completion date
August 1996



SITE PLAN

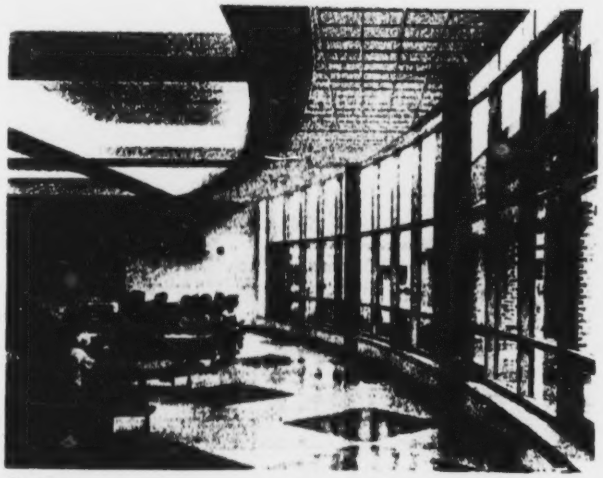
Yalesville Elementary School
Wallingford, Connecticut

Fletcher Thompson, Inc.

Yalesville Elementary School was part of a district-wide effort to redistribute the town's student population and achieve greater balance among the town's elementary schools. The project entailed reopening a former elementary school that had been closed and vacant for seven years. As a result of significant deterioration, the building needed to be stripped to its shell, which was then upgraded through the replacement of its roof and exterior windows/doors. The structure was expanded by the creation of a new addition, more than doubling the size of the original school.

The small site was subject to radical changes. The original entrances facing a main road were no longer deemed safe or effective in accommodating the anticipated number of cars and buses. Creating a completely new orientation and front door for the school became a basis for the new design. Modest site expansion was made possible by the acquisition of two adjacent properties.

The primary design challenge was to integrate the existing structure with extensive new construction, and to provide a functional, harmonious design—one equal to that of a totally new facility.



CAFETERIA

The existing building, consisting mostly of classroom-sized spaces, also contained a gymnasium/auditorium space, boasting high ceilings and clerestory lighting. This room was far too small for the new gym requirements, but the architect was reluctant to lose the expansive, soaring quality of this space, and determined with the owner that this area could house the planned media center.

Ultimately, the planning solution was to attach a new L-shaped single addition (highly economical as compared to several smaller additions) and connect it at two points to the existing L-shaped building. In this way, an attractively scaled new courtyard was formed, as well as an opportunity to create an efficient and unifying "loop" corridor.

Brick cladding, painted metal, and precast concrete accents were carefully chosen to unify the new addition with the original structure. The result is a visually seamless synthesis of new and old. The dramatic curves of the new lobby roof profile and cafeteria glass wall, framed by the masonry screen that dominates the new main entry, are spirited statements as to the important and dynamic nature of this totally modern facility. ■

MEDIA CENTER

EXTERIOR

K-8 SCHOOLS
RENOVATIONS/ADDITIONS

The Stubenrauch Architects, Inc.

708 Erie Ave
Sheboygan, WI 53081

James A. Sutton
(920) 458-3526

Design team

Thom J. Miron
Principal-in-Charge

Koby Scheel
Project Architect

Bob Heimerl
Design Architect

Client

First Immanuel Lutheran Church and School
(414) 377-6610

Grade span
Pre-K-8

Current building capacity
400

Current building area
86,344 square feet

Building area before addition/renovation
52,344 square feet

Total project costs
$2.8 million

Cost per square foot
$82

Space per student
216 square feet

Cost per student
$7,007

Completion date
August 1997

SITE PLAN

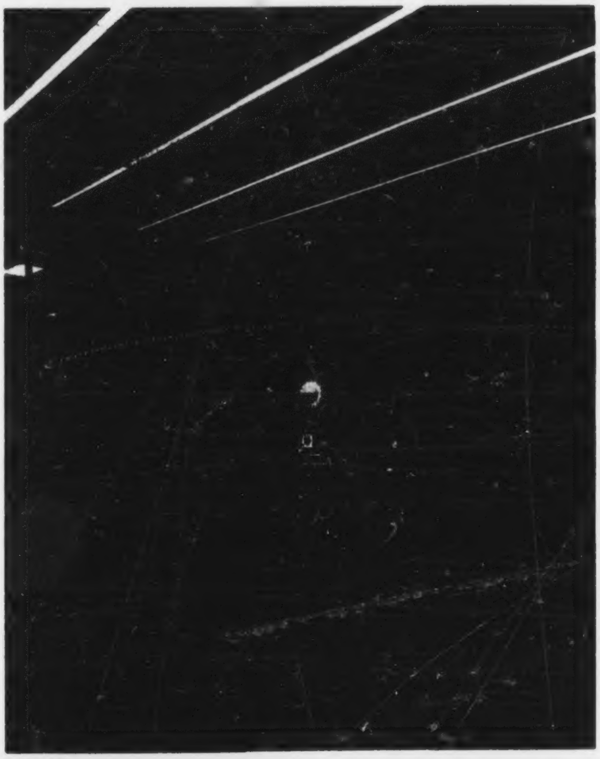
First Immanuel Lutheran School Cedarburg, Wisconsin

The Stubenrauch Architects, Inc.

The First Immanuel Lutheran School project was designed to bridge the gap spatially and aesthetically between an existing older school facility and a church built five years ago. The 34,000-square-foot addition eases the transition and unifies the two buildings, which were very different in form and character.

The two-level addition accommodates 12 new classrooms, a library, computer lab, teachers' workroom, and a multipurpose room with adjacent kitchen. A new girls' locker room was added and an existing area was renovated into a boys' locker room.

The centrally located library, or IMC, is a two-story atrium space with clerestory windows providing natural light to the IMC and to interior classrooms that surround it.



LIBRARY

CLASSROOM

A school entry, giving the school its own identity, was included as part of the addition. Careful attention was paid to the design of the school entry to ensure the church identity remained prominent.

The school is built of durable, low-maintenance materials. The materials used include concrete floor slabs, steel joist and metal deck construction, and interior masonry walls. The exterior brick and block were brought into the interior space at the IMC to create a warm atmosphere and relate the space to the whole facility. ■

EXTERIOR

K-8 SCHOOLS
RENOVATIONS/ADDITIONS

McClellan Associates Architects
4048 E. State Street
Rockford, IL 61108
Richard G. McClellan, AIA
(815) 227-0023

Design team

Richard G. McClellan, AIA
Principal-in-Charge

Brian Blakemore
Project Manager

Jeff Newcomb, KJWW Engineering
Mechanical Engineer

Ted Meyer, T.E. Meyer Associates
Structural Engineer

Client

Prairie Hill CUSD #133
(815) 389-4694

Grade span
K-8

Current building capacity
630

Current building area
61,000 square feet

Building area before addition/renovation
37,400 square feet

Total project costs
$3.2 million

Cost per square foot
$52

Space per student
97 square feet

Cost per student
$5,079

Completion date
Fall 1996

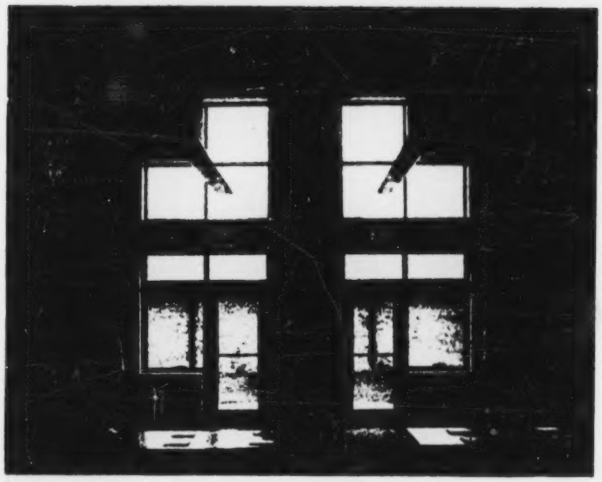
SITE PLAN

Prairie Hill School
Roscoe, Illinois

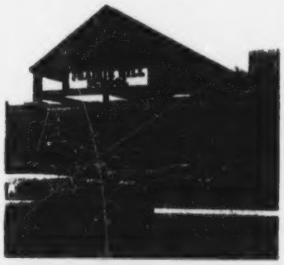
McClellan Associates Architects

The additions to and renovation of this K-8 grade school were the result of the district's need to provide expanded building capacity for increasing enrollment, technology, and changes in educational requirements.

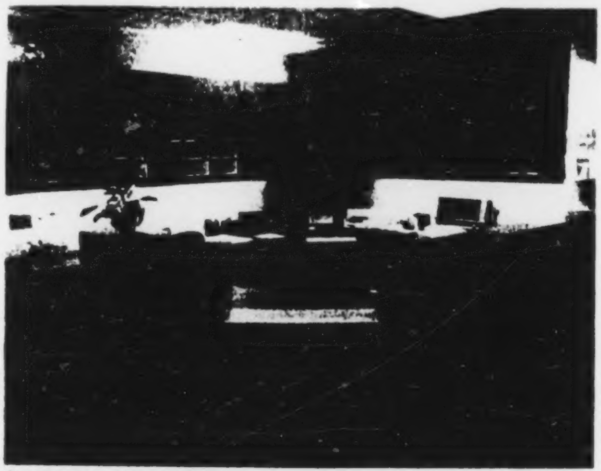
Expansion to the existing facility consists of a one-story addition containing seven new classrooms, a learning center with outdoor courtyard, school offices and faculty center, a multipurpose room with kitchen, special education office, and classroom, lobby, and storage spaces. The multipurpose room opens on to the gymnasium by means of a panel wall system.



LEARNING CENTER



ENTRY



OFFICE

EXTERIOR

Renovations address the existing structure's life safety code deficiencies and the change in educational requirements. These renovations consist of new classroom and corridor finishes, new insulated roofing, and new mechanical, plumbing, and fire protection systems. In addition, reorganizing the facility's spaces allows for a new, larger media center, music rooms, an expanded kindergarten room, and updated, accessible restroom facilities.

Site improvements consist of an outdoor courtyard space adjacent to the learning center, new parking for 100 cars, and separation of automobile and bus traffic.

The school is constructed of concrete block and brick, load-bearing walls. The metal entrance canopies and plaster fascia bands on the new portions were also applied to the existing structure to tie the two together to provide a harmonious exterior. ■

K-8 SCHOOLS
NEW CONSTRUCTION

Smiley Glotter Nyberg Architects

1021 LaSalle Ave.
Minneapolis, MN 55403

Gary Nyberg, AIA, ASID
(612) 332-1401

Design team

Gary Nyberg, AIA, ASID
Principal/Project Manger

Mark Lenz, AIA
Project Planner

Jim Wilson, AIA
Project Architect

Randall Bradley
Construction Administrator

Client

Minneapolis Public Schools
(612) 627-2010

Grade span
K-8

Current building capacity
600

Current building area
85,000 square feet

Total project costs
$7.5 million

Cost per square foot
$88

Space per student
142 square feet

Cost per student
$12,500

Completion date
August 1995

SITE PLAN

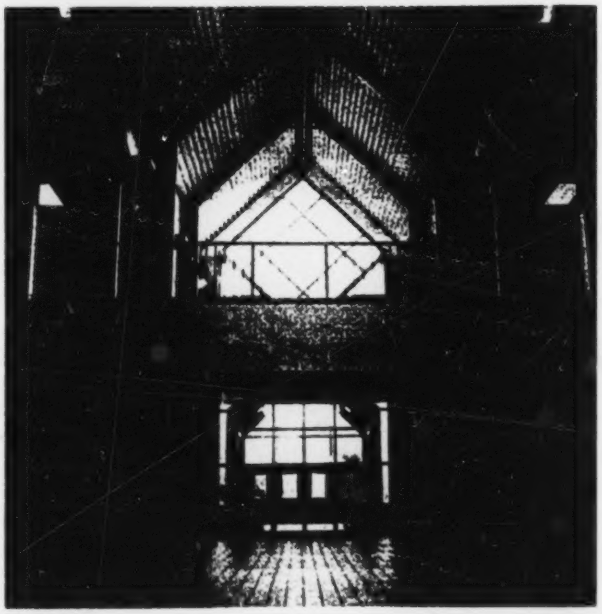
West Central Academy/Jenny Lind Elementary School Minneapolis, Minnesota

Smiley Glotter Nyberg Architects

Because of a large increase in elementary students within the last few years in Minneapolis, the district was faced with overcrowding of its current schools. SGN Architects proposed to the Minneapolis School District the idea of a prototype school, which would provide the district with multiple new facilities in a shorter period of time.

Representing a collaboration between the Minneapolis Public Schools, SGN Architects, and neighborhood groups, West Central Academy and Jenny Lind Elementary illustrate the successful use of a prototype design, developed to correspond to each school's unique urban context.

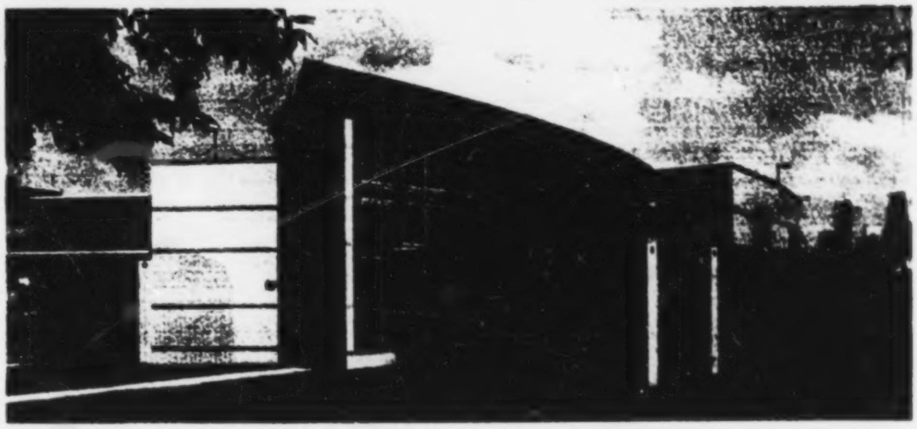
Curvilinear elements that soften corners and lessen scale reduce the massing of the schools. Each school's color palette also reinforces its context. The vibrant tones of West Central mirror the commercial buildings and street scape and Jenny Lind's subdued colors mesh with the residential houses and park setting.



MAIN ENTRY

The concept in planning the schools was to create a strong, mall-like circulation axis, which simplifies student travel throughout the school while maximizing corridor observation of students. A major cross axis provides two front doors, eliminating a back to the schools. ■

LIBRARY



EXTERIOR

K-8 SCHOOLS
NEW CONSTRUCTION

Dahlquist and Lutzow Architects, Ltd.
462 N. McLean Blvd.
Elgin, IL 60123
Bruce R. Dahlquist, AIA
(847) 742-4063

Design team

Bruce R. Dahlquist, AIA
Principal

Michael Krukowski
Project Manager

Brian Berg and Associates
Mechanical Engineer

BLM Engineers
Electrical Engineer

Ruettiger and Tonelli
Civil Engineer

Charles Pease and Associates
Structural Engineer

Client

Community Unit School District 300
(847) 426-1300

Grade span
K-8

Current building capacity
1,500

Current building area
174,600 square feet

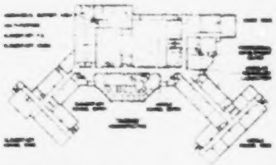
Total project costs
$15 million

Cost per square foot
$86

Space per student
116 square feet

Cost per student
$10,000

Completion date
August 1996



FIRST FLOOR PLAN

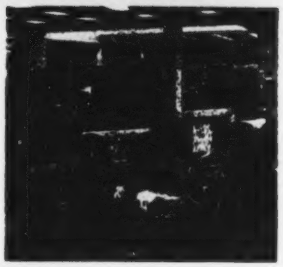
Westfield Community School
Algonquin, Illinois

Dahlquist and Lutzow Architects, Ltd.

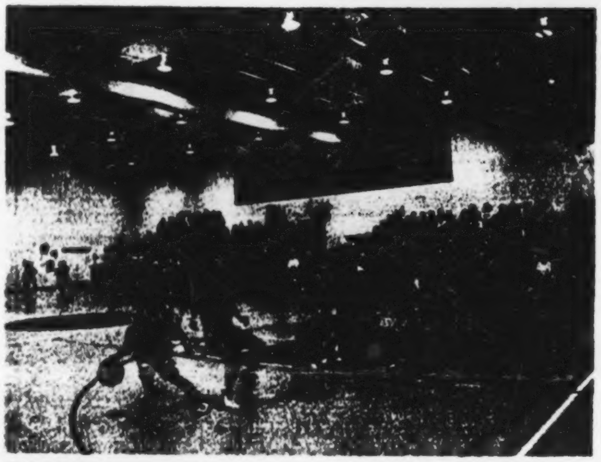
This $15 million project was part of a district-wide $39 million bond referendum. Demographic studies showed this area of the school district in need of an elementary school of 600 students and a middle school (grades 6-8) of 900 students.

Instead of designing two schools, it was determined that a combined elementary/middle school was the ideal response to the district's educational philosophy and the community's economic constraints.

MEDIA CENTER



INTERIOR



GYMNASIUM

EXTERIOR

The building design, consisting of a two-story, 174,600-square-foot masonry structure, reflects the philosophy of the combined elementary/middle school. The shape creates separate elementary and middle school courtyards.

Educational philosophy and economics dictated centralized spaces, including:

- a combined learning media center;
- centralized office to support the elementary and middle school, each having its own office and entrance, but internally connected for communication;
- shared teachers' lunchroom, encouraging the interaction of all faculty and staff;
- team teaching reinforced by classroom design;
- large multipurpose room used as the elementary and middle school cafeteria, with an attached satellite kitchen.
- the district professional development center, a multi-use-space, with state-of-the-art technology, which is used for faculty, staff, and community training.

The mechanical system consists of a central boiler and chiller system for distribution to perimeter baseboard radiators along with variable air volume rooftop HVAC units with electric air conditioning. ■

MIDDLE SCHOOLS
INTERIOR DESIGN

Smith Ottaiano Architects, P.C.

119 Fifth Ave.
New York, NY 10003

Ralph A. Ottaiano, AIA
(212) 353-8910

Design team

Ralph A. Ottaiano, AIA
Principal-in-Charge

Margaret J. Chambers, AIA
Project Manager

Client

Baldwin Union Free School District
(516) 377-9271

Grade span
7-8

Current building capacity
1,000

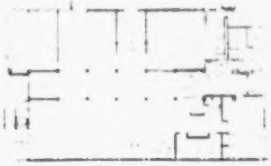
Current building area
136,874 square feet

Total project costs
$295,000

Cost per square foot
$37

Cost per student
$175

Completion date
September 1996



FLOOR PLAN

Baldwin Middle School
Baldwin, New York

Smith Ottaiano Architects, P.C.

The new library at Baldwin Middle School was designed to expand and update the facility's capability as an information/teaching center. The original building was constructed in the mid 1950s, and its original library was severely limited in its ability to provide the services now required for library/media centers in the information access age.

Working closely with the school's librarian and administrators, the architects developed a program and a plan that is able to accommodate a diverse group of library users. The plan allows the library to keep up with technological advances in media and information retrieval while also engaging traditional library functions.

The new library, carved out of six classrooms and a corridor on the ground floor of a two-story, U-shaped classroom wing, is oriented to face the interior courtyard of this wing. This site was chosen to capitalize on its central location relative to other teaching centers and its view of the courtyard, which until this renovation was unused and appeared uninspiring from the surrounding classrooms.

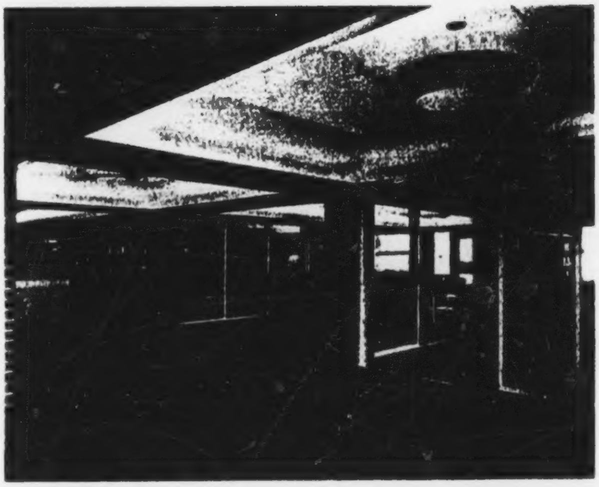
The original corridor defines the main axis of the library. The librarian is the hub, placed in a central station to advise and supervise. Interior columns clad in brick add strength and firmness to the axis while borrowing materials used on the building exterior.

Sliding glass doors provide classroom privacy without compromising visual control or flexibility.

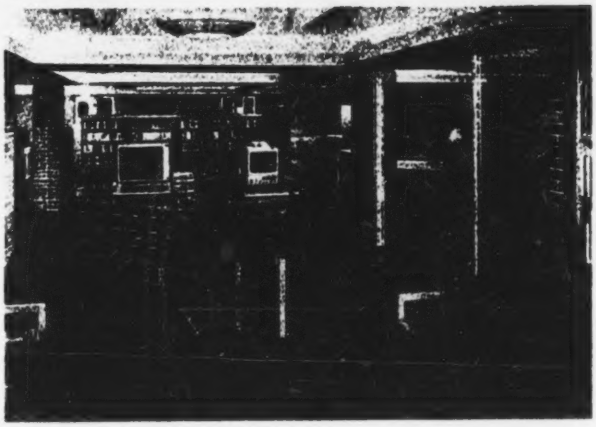
Special attention was given to the lighting design, which balances a variety of illumination sources and fixtures to achieve a lighting scheme capable of serving multiple tasks while reinforcing spatial volume.

New furniture component groupings were designed by the architects, including book stacks, circulation and reference desks, study carrels, and online resource retrieval centers. ■

COMPUTER AREA



LIBRARY ENTRY



INDEX AREA

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MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

L. Robert Kimball & Associates, Architects and Engineers, Inc.
21 W. Washington Street, Suite F
West Chester, PA 19380
A. Stevens Krug, AIA, PE, CEM
(610) 692-2232

Design team

A. Stevens Krug, AIA, PE, CEM
Principal-in-Charge

Michael Berninger, AIA
Project Manager

David Schrader, AIA
Project Architect

Robert Davis, AIA, PE, John C. Haas Associates
Structural Engineer/Associate Architect

Edward E. Kirkbride, REFP
Educational Architectural Consultant

Client

Bellefonte Area School District
(814) 355-4814

Grade span
6-8

Current building capacity
900

Current building area
127,850 square feet

Building area before addition/renovation
109,000

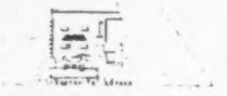
Total project costs
$10.8 million

Cost per square foot
$67

Space per student
142 square feet

Cost per student
$12,000

Completion date
September 1999



SITE PLAN

Bellefonte Area Middle School
Bellefonte, Pennsylvania

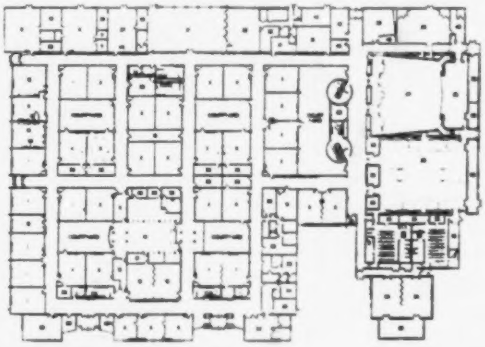
L. Robert Kimball & Associates, Architects and Engineers, Inc.

In April 1996, Kimball performed a district-wide feasibility study of four elementary schools, a middle school, and a high school. The study provided 16 options for grade configurations from which Bellefonte Area School District (BASD) chose the options of K-5, 6-8, and 9-12.

BASD started with the middle school, which has the biggest overcrowding problem. There will be 18,850 square feet of additions to the existing 109,000 square feet, which will be renovated and altered. The total of 127,850 square feet will house 900 students. The construction cost is $8.6 million. The building will receive new, energy-efficient heating and ventilation systems (geothermal), new electrical systems, and a new roof.

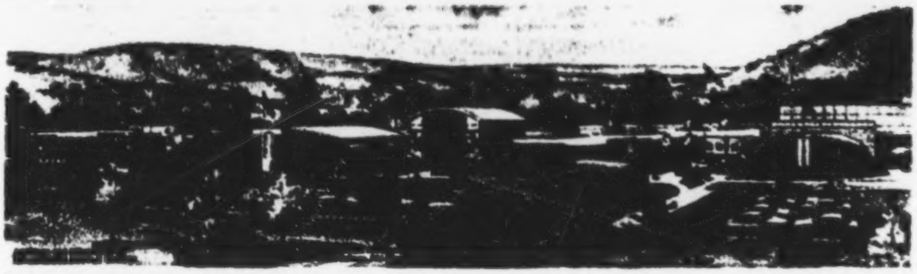
The middle school provides a unique dual track educational program. It is based on the concept that curriculum should be integrated so students see the connections within and across subject areas and are able to apply their knowledge in real-life situations. Grade-level grouping in the building design facilitates the team teaching approach and continuation of the dual curriculum of Reinvesting Education for Active Learning and traditional learning. The learning media center is reorganized and expanded to serve as the hub of technology and information for the educational process. The support areas are arranged on the perimeter of the academic core area to allow the learning media center to act as the focus of the facility.

Construction is scheduled to allow the facility to continue operating during the school year. The entire project is scheduled for completion in September 1999. ■



FLOOR PLAN

EXISTING FACADE



RENDERING

Campbell Middle School
Campbell, California

HMC Group

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

HMC Group

1570 The Alameda #330
San Jose, CA 95126

Lee Salin, AIA
(408) 977-9160

Design team

Kirk S. McKim
Project Architect/Manager

Joseph Flatley
Mark Schoeman
Donovan Doloian
Bill Gould
Architects

Client

Campbell Union School District
(408) 341-7214

Grade span
5-8

Current building capacity
1,000

Current building area
90,000 square feet

Building area before addition/renovation
90,000 square feet

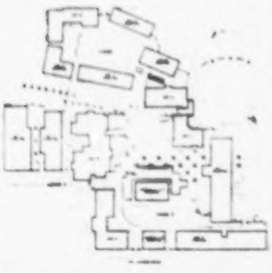
Total project costs
$11 million

Cost per square foot
$122

Space per student
90 square feet

Cost per student
$10,950

Completion date
September 1997

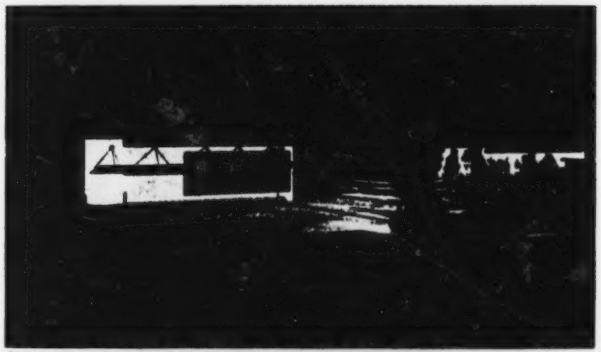


SITE PLAN

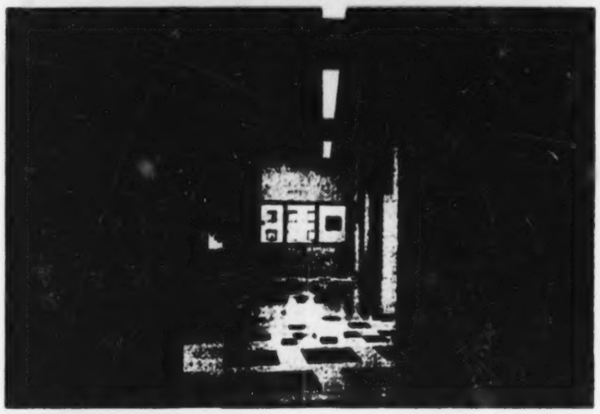
HMC Group assisted the Campbell Union School District in developing educational guidelines that set goals for the development of instructional programs and facilities development. Primary to these goals was the desire to foster team teaching, to encourage the students' sense of ownership of the facility, and to use the concept of "schools within a school" to reduce the overwhelming impact on students attending large campuses. This last concept involves breaking larger campuses up into smaller "schools" or "houses," giving the sense of independent schools clustered around a central administrative core.

Campbell Middle School was a large, traditional "finger-plan" school lacking organization and focus. Over the years, rows of classrooms developed in a barracks-like fashion, surrounded by asphalt. In addition, much of the campus was more than 30 years old, and the infrastructure was incapable of accommodating modern, computer-related educational programs. The facility was incompatible with the district's goals.

Through selective demolition and reconstruction of approximately 45,000 square feet of existing buildings and site structures, and the modernization and remodeling of the remaining 45,000 square feet, a fully modern 90,000-square-foot campus has been created that meets the desires and goals of the district's programs.



QUAD AREA LOOKING TOWARD MEDIA CENTER CLOCK TOWER



ADMINISTRATION INTERIOR

Campbell Middle School is a fully modern campus divided into three distinct "schools" or "houses," each consisting of 12 classrooms and a teacher work center surrounding their own independent courtyards. These three schools form three sides of a central meeting area or quad that is the heart of the campus. The fourth side of this quad is the campus administration, media center, and multipurpose facility. This central quad serves to connect the three schools with administration, while giving the campus a central focus.

To assist the instructors with team teaching, most classrooms are developed in pairs with an operable wall and a small-group breakout room dividing them. This configuration allows two classrooms to become one single larger classroom. In addition, each school has its own teacher meeting and workroom.

One area of special notice is the two-story "house" directly opposite the entry of the campus. As the site was limited on all sides by existing facilities, the creation of a central quad was problematic, since the campus could not reorganize outwards. To solve this problem, the campus-needed to grow upwards. The resolution to this problem resulted in one of the campus' most striking features, a two-story building consisting of 12 classrooms nestled into the literal center of campus. ■

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447

MIDDLE SCHOOLS
New Construction

Schmidt Associates, Inc.

320 E. Vermont Street
Indianapolis, IN 46204

Mary Ellen Wolf, RA
(317) 263-6226

Design team

Ron Fisher, AIA
Principal-in-Charge

Mary Ellen Wolf, RA
Project Manager

Tanner Underwood, RA
Project Architect

John Camden, PE
Mechanical Engineer

Dave Shuck, PE
Electrical Engineer

Wes Harrison, PE
Structural Engineer

Robert Adams, RLA
Landscape Architect

Client

Brownsburg Community School Corp.
(317) 852-5726

Grade span
7-8

Current building capacity
800

Current building area
182,000 square feet

Total project costs
$19 million

Cost per square foot
$104

Space per student
228 square feet

Cost per student
$23,750

Completion date
June 1997

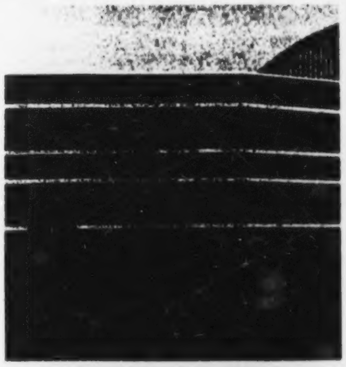
Brownsburg Junior High School
Brownsburg, Indiana

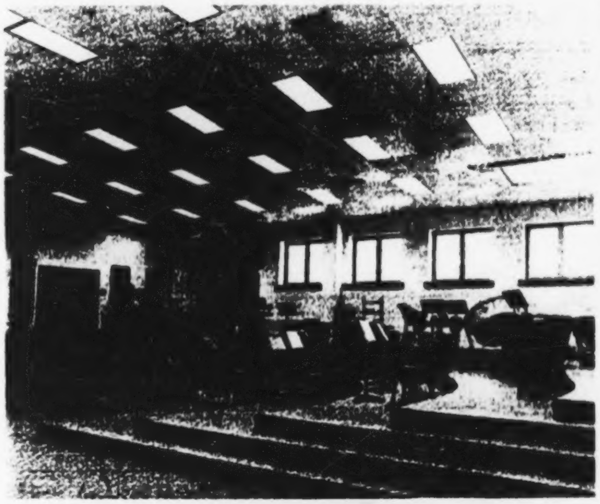
Schmidt Associates, Inc.

Brownsburg Community School Corp. is among those Indiana districts experiencing substantial growth in student population. With 70 acres of undeveloped land, this district's board commissioned Schmidt Associates to conduct a site development study—an outgrowth that resulted in the design and construction of this new facility.

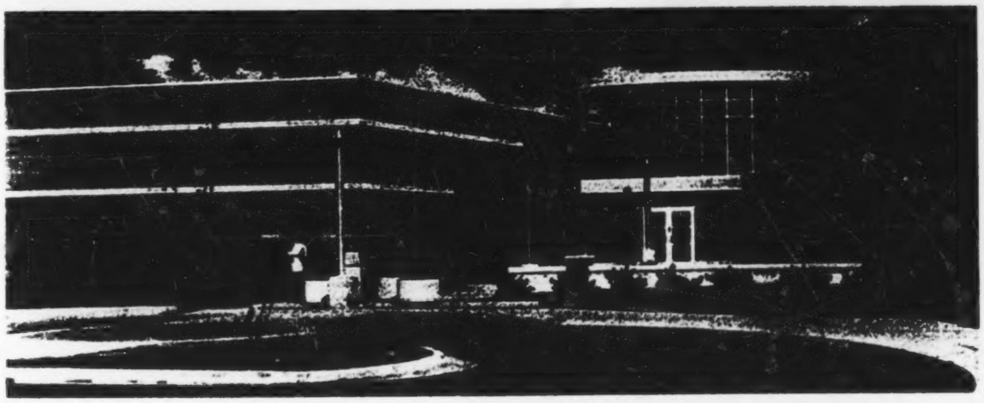
Although Brownsburg Community School Corp. was experiencing growth, its primary goal was to design a facility that could accommodate 1,000 students yet maintain a close-knit student environment. To accomplish this, the facility was designed around a "pod" concept—dividing the building into smaller and manageable, yet flexible, sections.

With potential to expand to four pods, the current facility has been constructed with

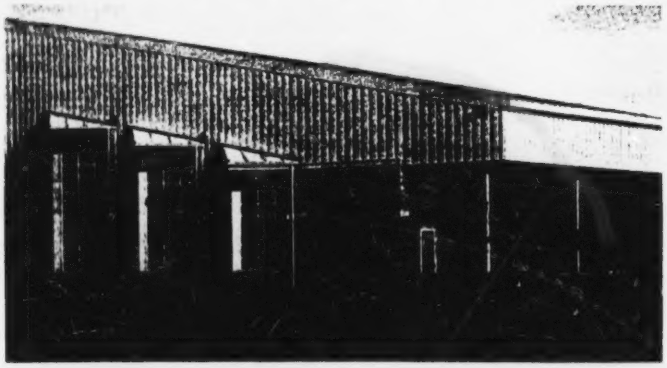


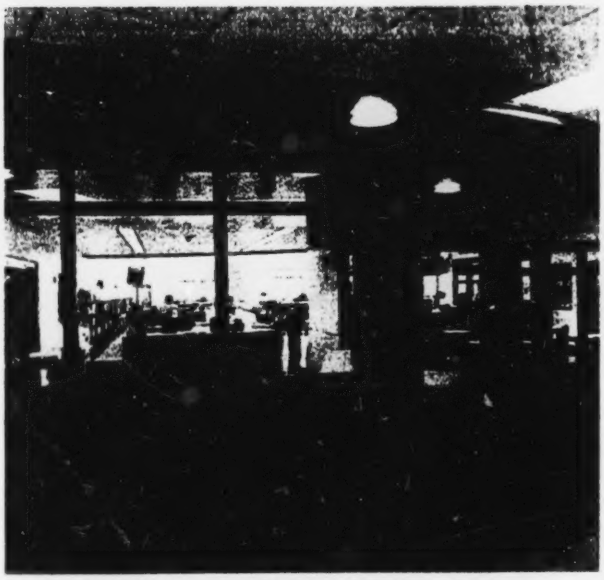


THE MUSIC SUITE PROVIDES AN EXCELLENT ACOUSTIC BALANCE THAT ALLOWS STUDENTS TO HEAR THEMSELVES WITHIN THE FULL ENSEMBLE.

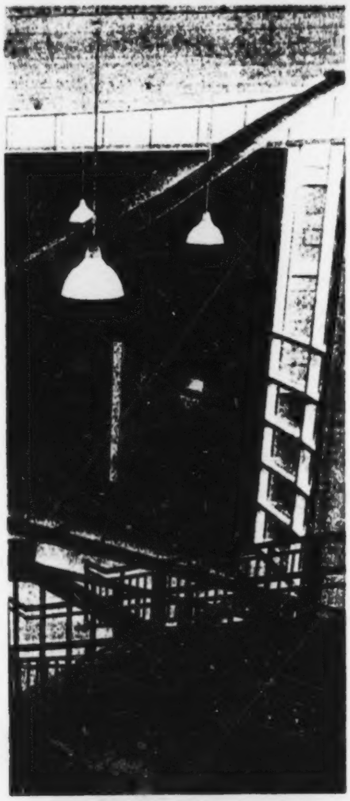


THE MAIN ENTRY SERVES AS THE FOCAL POINT OF THE SCHOOL AND EMPHASIZES THE 'POD' STRUCTURE OF THE BUILDING.





THE CAFETORIUM'S OUTDOOR SEATING (ABOVE) PROMOTES DINING AND SOCIALIZING IN A BEAUTIFULLY LANDSCAPED ENVIRONMENT.



A CENTRAL STUDENT COMMONS AREA (LEFT) PROVIDES FOR DISPLAY OF ARTWORK AND A GATHERING PLACE FOR STUDENTS BEFORE AND AFTER SCHOOL.

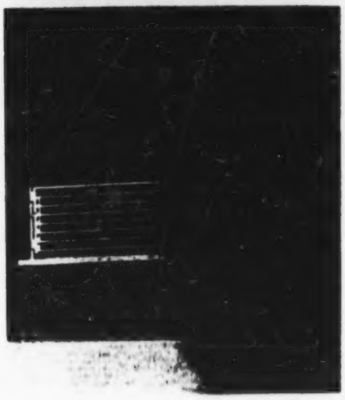
THE MEDIA CENTER ACCOMMODATES A VARIETY OF TEACHING RESOURCES, INCLUDING INSTRUCTORS, PRINT MEDIA, AND TECHNOLOGY.

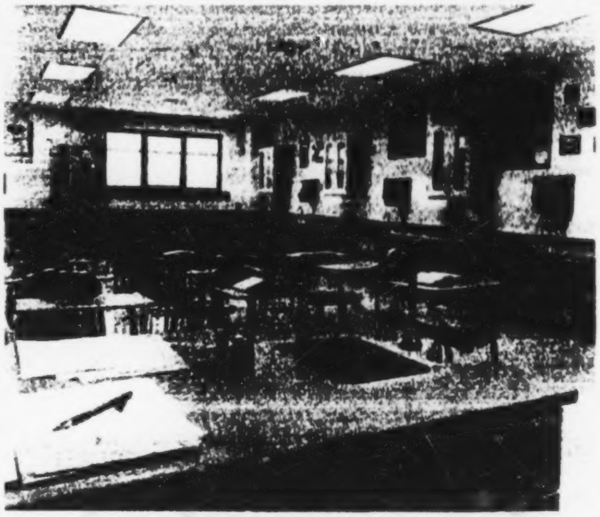
only three. While the facility is designed to hold up to 1,000 students, the academic areas have been constructed for only 800. Should student population continue to increase as projected, the addition of the fourth pod in a later phase will easily accommodate the additional 200 students.

At the main entry, the administrative office functions as the greeting and control point. The arrangement of the entrances to guidance and the general office separates counseling areas from disciplinary offices. A central student commons area provides for the display of fine and practical arts, as well as serving as a casual gathering area for students before and after school. An adjoining bookstore allows students to make convenient purchases of school supplies.

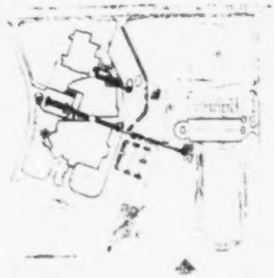
Centrally located, the media center is situated between the academic areas and the remainder of the school so it can be accessible to all areas of the building. Its focus on technology is supported by access to the Internet, linkages to all classrooms, and a computer room inside the center itself. Tall bookshelves line the perimeter, and a central, open table area provides flexible study space.

The cafetorium is designed as a dual space for both meal service and arts performances. Retractable curtains and acoustic treatments provide flexibility for a variety of options. The new serving area is capable of providing food service for 390 students and staff members per lunch period. ■





FULLY EQUIPPED SCIENCE LABORATORIES PROVIDE STUDENTS WITH THE FLEXIBILITY TO LEARN AT AN INDIVIDUAL DESK OR THE LAB AREA.



SITE PLAN

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

Gilbert Architects

626 N. Charlotte Street
Lancaster, PA 17603
(717) 291-1077

Design team

Thomas W. Gilbert, RA
Principal

Robert C. Klinedinst, Jr., RA
Studio Director

Client

Cornwall-Lebanon School District
(717) 272-2031

Grade span
6-8

Current building capacity
1,547

Current building area
191,079 square feet

Building area before
addition/renovation
149,849 square feet

Total project costs
$12.6 million

Cost per square foot
$66

Space per student
124 square feet

Cost per student
$8,135

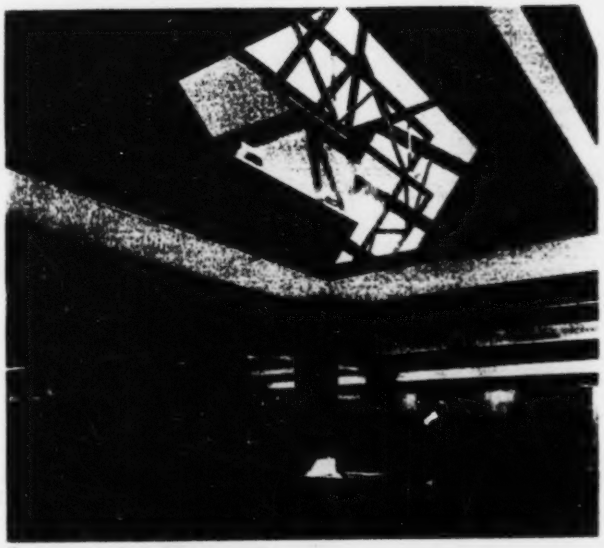
Completion date
September 1997

Cedar Crest Middle School
Lebanon, Pennsylvania

Gilbert Architects

Cedar Crest Middle School in the Cornwall-Lebanon School District, operating at maximum capacity, was in serious need of expansion and upgrades to accommodate a projected increase in enrollment. In addition, the new educational program was not supported by the existing layout of the building. Core spaces—such as the media center, located at the center of the building—were not easily accessible for after-school use by the community.

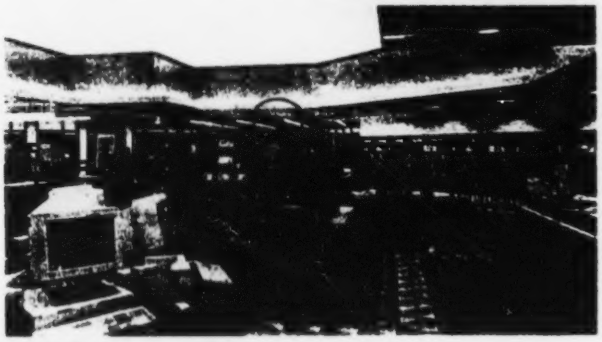
Spaces such as the original cafeteria and auditorium (which seated only 388 people) were severely undersized and unable to meet current or future demands. A new cafetorium was designed, bringing theater, stage, auditorium, food court, and dining hall into one multifunctional space, addressing savings in cost as well as functionality. The old cafeteria then was transformed into a technologically advanced media center, bringing both technology and aesthetic flavor into a once-tired space. Other new additions include the kitchen, art and band rooms, an auxiliary gymnasium, and additional storage and classrooms.


STUDENT COMMONS WITH SKYLIGHT

SITE PLAN

One goal of the Cedar Crest Middle School renovation project was to bring unity and continuity to the school as a whole. The entire original portion of the building was renovated, while the new wings were designed to bring a contemporary grace to the overall appearance. ■

EXTERIOR


MEDIA CENTER

CAFETORIUM

MIDDLE SCHOOLS
SPECIAL PURPOSE FACILITY

The LPA Group, Inc.
2530 Devine Street
Columbia, SC 29205
Bob Anderson, AIA
(803) 254-2211

Design team

Bob Anderson, AIA
Project Architect

Wayne Mabry, Mabry Engineering
Structural

Allen Auten, Buford Goff & Associates
Mechanical/Plumbing

Chris Partrich, Evans Engineering Associates
Electrical

Client

Richland County School District One
(803) 733-6041
Dr. Donald Henderson, *Superintendent*
Robert Chestnut, *Senior Associate, Business Services*
Jeff Platenberg, *Facilities*

Grade span
6-8

Current building capacity
60

Current building area
6,000 square feet

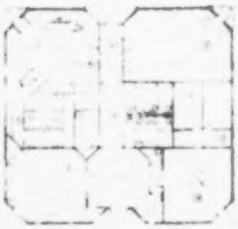
Total project costs
$521,000

Cost per square foot
$87

Space per student
100 square feet

Cost per student
$8,683

Completion date
January 1996



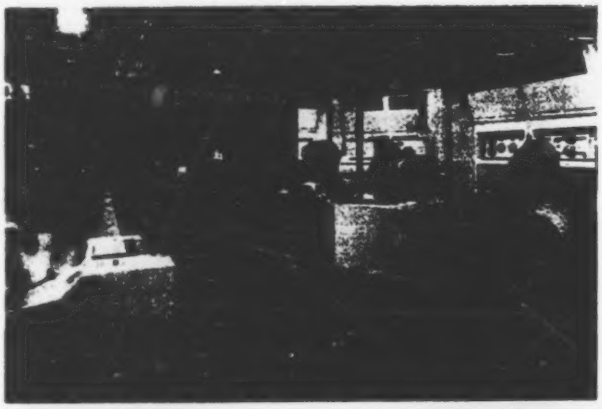
FLOOR PLAN

Challenger Learning Center at W.A. Perry Middle School
Richland County School District One
Columbia, South Carolina

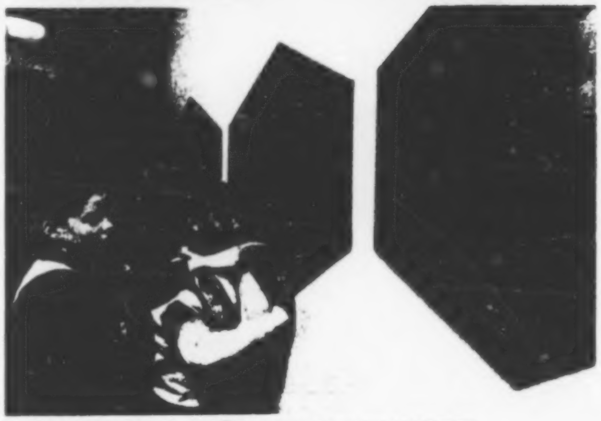
The LPA Group, Inc.

Take a trip to the Moon or ride across the galaxy on a comet's tail at the Challenger Learning Center at Richland County School District One in Columbia, S.C. Challenger Centers are a living memorial to the seven astronauts who perished during lift-off in 1986. South Carolina astronaut Ron McNair was one of the seven. Cheryl McNair, his widow, and fellow astronaut Gen. Charles Bolden, a Perry Middle School alumnus, presided at the dedication in February, 1996. These astronauts' mission continues by using the excitement of space travel to demonstrate real-world applications of math, science, and verbal skills.

The center represents a significant investment in interactive team learning. As the culmination of a six-week curriculum, groups of 18 to 36 students and their teachers man "mission control" and the "space station" to make their imaginary voyage successful. Simulations require:



SPACE STATION DURING A MISSION

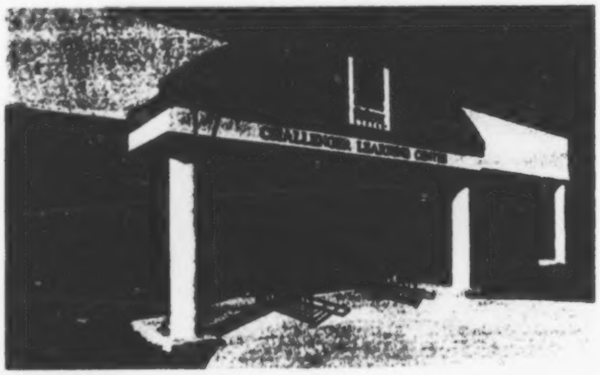


VIEW OF SPACE STATION AND EARTH SEEN FROM THE SPACE TUBE

- audio/video/data intercommunication;
- physical sciences monitoring;
- robotic chemical testing;
- biohazard glove box experiments; and
- probe assembly and launch.

In addition, joint missions with remote centers are possible via the Internet. Special effects include a "shuttle" ride to space, viewing Earth through the "space tube," and returning via the "transporter." A model science classroom, exhibit area, offices, and gift shop complement the center's educational programming.

The building exterior is designed to blend with the neighborhood and adjacent school, while the interior's "spatial" rooms encourage students' imaginations to soar. ■



MAIN ENTRY

BEST COPY AVAILABLE

MIDDLE SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.
114 York Street, P.O. Box 584
Michigan City, IN 46360
(219) 872-0635

Design team

Lee J. Brockway, AIA
Principal-in-Charge

Douglas M. Wickstrom, AIA
Project Manager/Designer

Richard G. Boyd, AIA
Project Architect

Charles A. McCoy, CET
Mechanical Designer

Stuart E. Franzen, ASLA
Landscape Design

Nancy J. Christoph, ASLA
Richard F. Rohrer III, ASLA
Anthony E. Wood, RLA
Site

Jeffery D. Wright, PE
Civil

Terry J. Hamrick, CET
Gerald E. Kinyon, PE
Structural

William B. Harmon
Electrical Designer

Client

Penn-Harris-Madison School Corp.
(219) 259-7941

Grade span
6-9

Current building capacity
900

Current building area
165,435 square feet

Total project costs
$15.3 million

Cost per square foot
$92

Space per student
184 square feet

Cost per student
$16,957

Completion date
June 1996

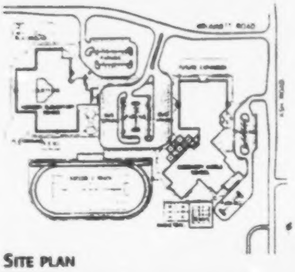
Discovery Middle School
Granger, Indiana

Fanning/Howey Associates, Inc.

Discovery Middle School and the adjacent Horizon Elementary School were designed to complement one another in a campus setting. The two facilities share the same site, so careful consideration was given to the flow of traffic to and around each school building. A combined bus loop is provided on the site, so buses can first serve elementary students and then middle school students, while separate front entrances located on different thoroughfares provide individual identity. Outdoor activity/athletic fields, such as a football/soccer/track field, two tennis courts, and two basketball courts, are shared on the common ground between the two buildings.

Because the Penn-Harris-Madison School District is a suburban school district, activities associated with these schools, as well as those simply held at the schools, are the focus of this community. Therefore, a key feature of the design of these new facilities was providing community-use space within the buildings and on the site.

EXTERIOR ENTRY

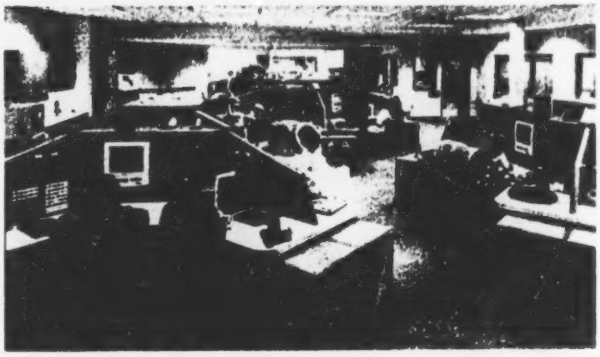


SITE PLAN

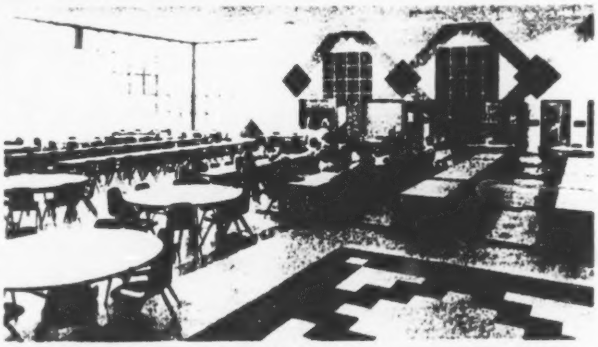
Discovery Middle School

BECAUSE THIS CAMPUS-LIKE SETTING SHARES THE SITE WITH THE ELEMENTARY SCHOOL, SEPARATION OF VEHICULAR TRAFFIC AND OUTDOOR PHYSICAL ACTIVITY AREAS WAS A DESIGN CONSIDERATION.

THE MEDIA CENTER IS AT THE HEART OF THE BUILDING WITH IMMEDIATE ACCESS TO THE COMPUTER LAB.



INTEREST-BASED LABS ARE PROVIDED FOR INDUSTRIAL TECHNOLOGY, HOME ECONOMICS, AND CONSUMER SCIENCE.

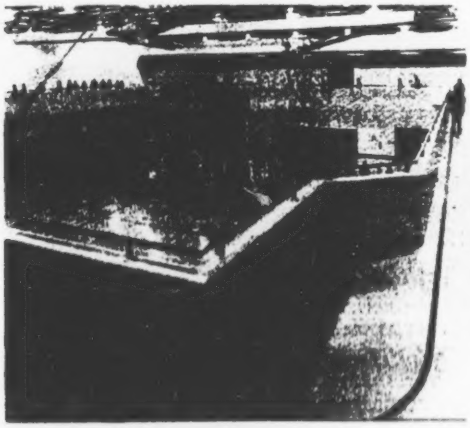


THE CAFETERIA AND FOOD SERVICE AREA INCLUDES A STAGE FOR PERFORMANCE AND ASSEMBLIES.

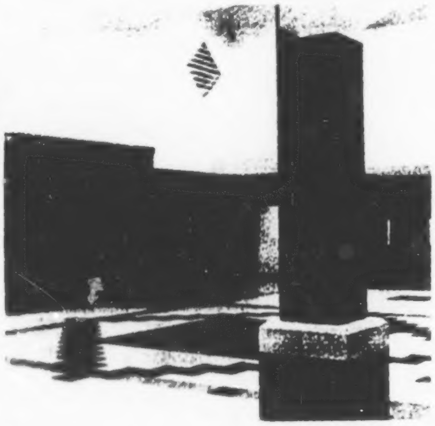
was designed to separate the public portions of the building from the academic portions, allowing for use by the community during and after school hours. The academic portions support a block scheduling approach. Each middle school team area is a separate neighborhood where all of the core academic activities take place. There are two team areas with a capacity of 150 students each for every grade level. When all three grades are considered, building capacity is therefore a total of 900. The building has the potential for expansion to house up to 1,350 students. When the students' schedule takes them out of their team area, a variety of enrichment opportunities are available. Interest-based instruction is incorporated in the industrial technology and consumer science laboratories. There is a wonderful health/fitness/physical education suite with classrooms, fitness assessment area, indoor running track, and two gymnasiums. The music area supports choral, band, orchestra, and MIDI lab instruction.

At the heart of the building is a media center with immediate access to a computer lab. Large-group instruction rooms are located in this central hub, allowing for the congregation of students from several classrooms in one space for presentations, assemblies, and other large-group activities. These spaces are equipped with audio visual capabilities to accommodate a wide variety of activities, including distance learning. Advanced data network systems are available throughout both buildings and will be part of the district's wide area network. Video distribution is provided with a central video switch at the middle school, providing a significant savings in video equipment with no compromise in capability. Fiber-optic cable joins the two buildings on this site.

The fan-powered, variable air volume, heating/cooling system meets environmental requirements for all academic spaces. Heating is generated by a high-efficiency modular boiler system with cooling provided by two central air-cooled chillers to allow for complete cooling diversity at maximum energy efficiency. Discovery Middle School is controlled by a direct digital control and monitoring system that allows for off-site evaluation and building preventative maintenance planning. All major mechanical components are located within the building envelope, which provides a more convenient environment for maintenance during inclement weather and reduces damaging foot traffic on the roof. ■



GYMNASIUM WITH SECOND-STORY TRACK. PERIMETER OFFERS ACADEMIC CLASSROOMS AND WEIGHT ROOM.



COMMONS AREA

MIDDLE SCHOOLS
NEW CONSTRUCTION

PJHM Architects Southwest

456 W. 200 North
Cedar City, UT 84720
(801) 865-9900

Design team

David J. Hansen
Principal-in-Charge/Managing Design Architect

Jan Hansen
Ken Podany
Project Architects

STB Structural Engineers Inc.
Structural

Frederick J. Brown Associates
Electrical

R. J. Robinson Engineering P.C.
Mechanical

Watson Engineering Co.
Civil

R. Dale Hadfield, ASLA
Landscape

Client

Iron County School District
(801) 586-2804

Grade span
6-7

Current building capacity
1,200

Current building area
108,000 square feet

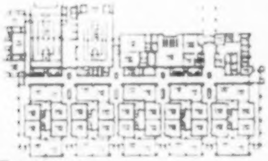
Total project costs
$10.8 million

Cost per square foot
$100

Space per student
90 square feet

Cost per student
$9,000

Completion date
September 1995



FLOOR PLAN

Cross Hollows Intermediate School
Cedar City, Utah

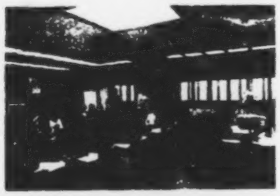
PJHM Architects Southwest

The Cross Hollows Intermediate School has been specifically designed to facilitate the instructional programs for Iron County's sixth- and seventh-grade students. It uniquely blends physical spaces and requirements, which are specifically created to work between traditional elementary and middle school grade levels. As with all PJHM Architects Southwest projects, classrooms and support spaces are configured to take full advantage of emerging education technologies.

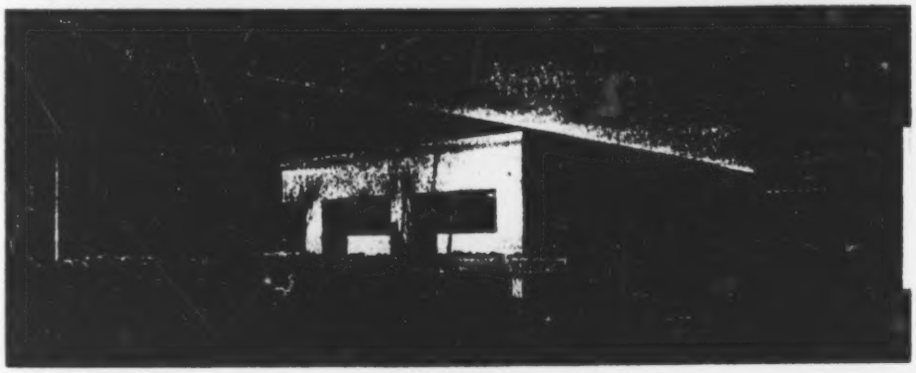
The architectural expression is crafted to carefully fit into the breathtaking natural surroundings of Cedar City, Utah. Cross Hollows also incorporates finely tuned, natural lighting design techniques which not only save energy, but provide a lighter, brighter environment for the learning process. ■

CORRIDOR

ENTRANCE TO ACADEMIC PODS



SCIENCE/TECHNOLOGY CLASSROOM



ENTRANCE COURTYARD

Ruth Dowell Middle School
McKinney, Texas

SHW Group, Inc.

MIDDLE SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.

4101 McEwen, Suite 300
Dallas, TX 75244

Gary Keep
(972) 701-0700

Design team

Gary Keep
Officer-in-Charge

Bill Wadley
Designer

Mike Elmore
Project Manager

Andy Tunnell
Project Architect

Joe Craddock
Structural Engineer

Jim Estes, MEP, Estes, McClure & Associates
MEP Engineers

Client

McKinney Independent School District
(972) 569-6400

Grade span
6-8

Current building capacity
1,200

Current building area
123,298 square feet

Total project costs
$8.6 million

Cost per square foot
$78

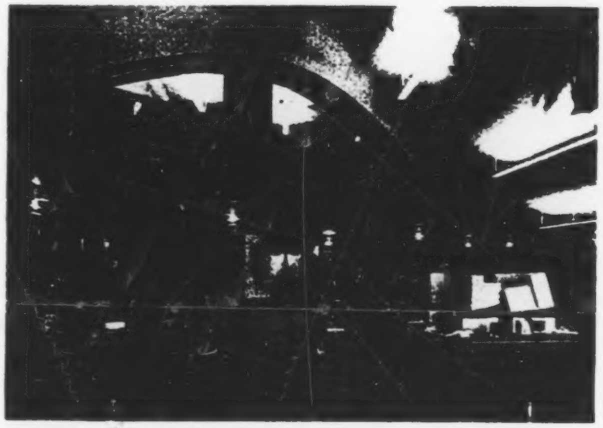
Space per student
103 square feet

Cost per student
$7,193

Completion date
August 1995

McKinney Independent School District wanted this school designed for an initial 1,200 students with a future addition of up to 1,500 students. The academic portion of the building is arranged to provide for the team-teaching method of instruction, utilizing separate entrance areas and a U-shape corridor configuration. The U-shape corridor allows for teams to share resources. A folding wall in one classroom allows for larger group instruction.

The first floor contains an electives "pod" where life skills, foreign language, art, computer, special education, and an advanced science classroom area are located. Four sixth-grade teams are located on the first floor; the upper floor contains six more team areas for seventh and eighth grades. The library is at the center of the building on the first floor. A tiered dining area also serves the auditorium function for the school with a large stage on one side. To give the layout of the school a smooth flow, the gymnasium, administration, music, and dining facilities are located in the publicly accessible commons area. ■



LIBRARY

SITE PLAN

GYMNASIUM

COMMONS/ADMINISTRATION

MAIN ENTRANCE

MIDDLE SCHOOLS
NEW CONSTRUCTION

DiCara Malasits and Rosenberg Architects

99 Essex Street
Maywood, NJ 07607

Lloyd A. Rosenberg, AIA
(201) 368-1616

Design team

Lloyd A. Rosenberg, AIA
Managing Principal

Joseph A. DiCara, AIA
Emery M. Malasits, AIA
Principals

Gregg Stopa, AIA
Project Architect

David Stoddard, AIA
Designer

Josephine Arroyo
Architectural Draftsperson

Melissa Candela
Interior Designer

Client

Franklin Lakes Board of Education
(201) 891-1856

Grade span
6-8

Current building capacity
650

Current building area
85,000 square feet

Building area before addition/renovation
60,700 square feet

Total project costs
$9 million

Cost per square foot
$106

Space per student
131 square feet

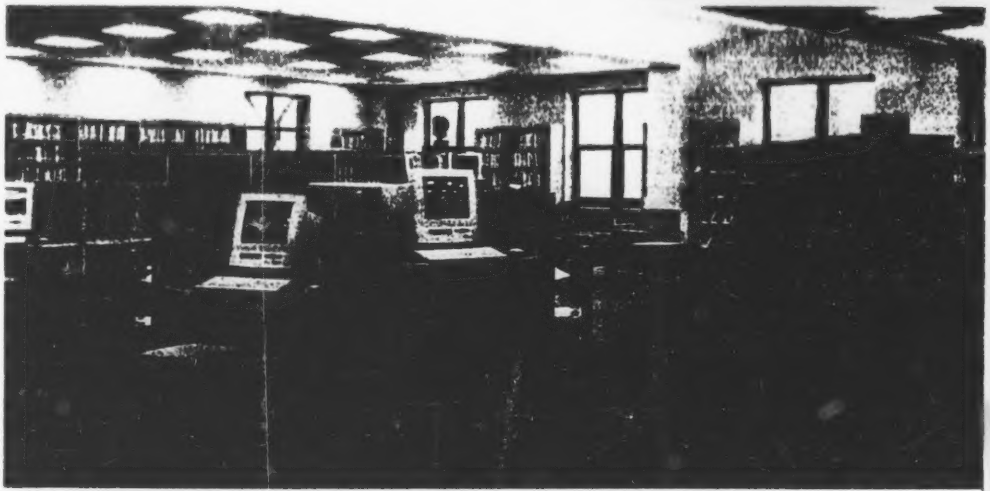
Cost per student
$13,846

Completion date
September 1996

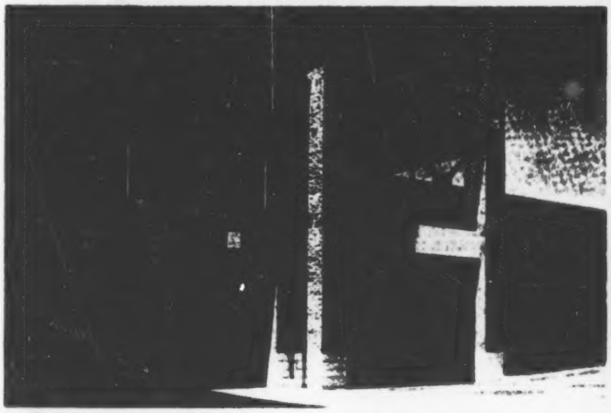
Franklin Avenue Middle School
Franklin Lakes, New Jersey

DiCara Malasits and Rosenberg Architects

Franklin Avenue Middle School's 24,200-square-foot addition and 60,700-square-foot total renovation project offers 624 students in grades six through eight an active learning environment utilizing a dynamic curriculum and state-of-the-art facilities. Technology has lifted the school to another level that challenges teachers and prepares students for the 21st century. The building is fiber-optically networked, with computer stations located in each classroom and the library/media center. Renovated music and industrial art rooms, as well as a new computerized weather satellite station in the science lab, enhance the contemporary facility. The completed facility fosters the school's comprehensive, academically challenging, and innovative educational program.

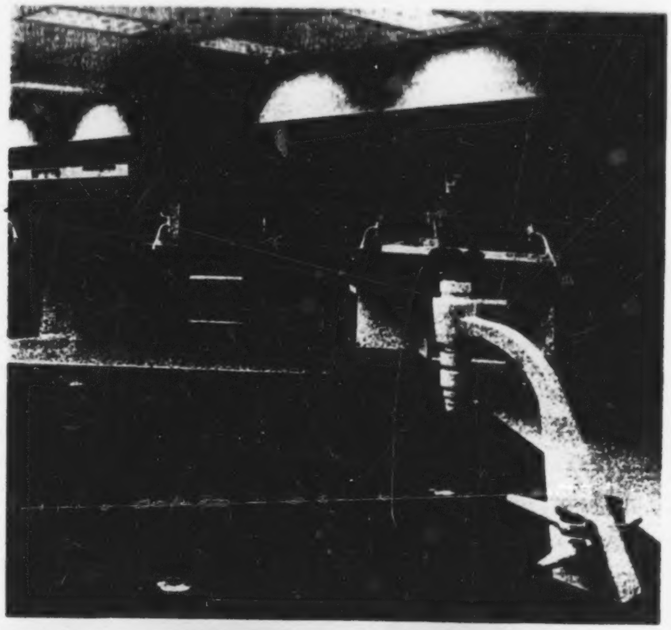


THE STACK AND SHELVING AREAS OCCUPY MORE THAN 890 SQUARE FEET OF SPACE, OFFERING NUMEROUS CIRCULATION OPTIONS.

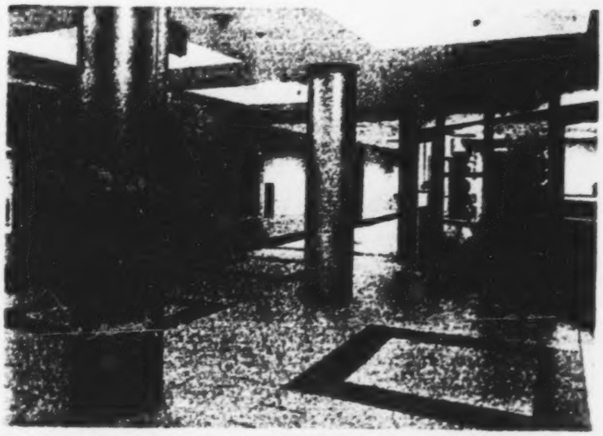


THE FRANKLIN AVENUE MIDDLE SCHOOL ENTRANCE AND PLAZA CREATES A NEW IDENTITY FOR THE SCHOOL.

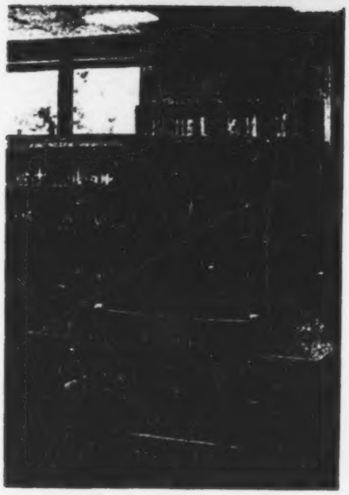
THE MUSIC/VOCAL ROOM FEATURES ACOUSTIC

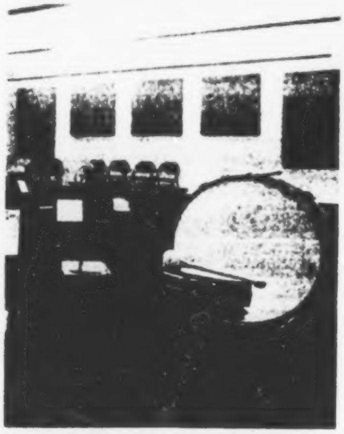


A STATE-OF-THE-ART SCIENCE LAB (LEFT) OFFERS A COMPUTERIZED WEATHER SATELLITE STATION.



FRANKLIN AVENUE MIDDLE SCHOOL'S ENTRANCE LOBBY AND ADMINISTRATIVE AREA WELCOME VISITORS.



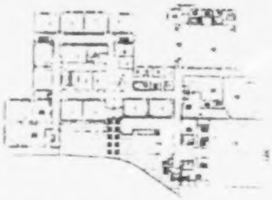


NELS THAT ENHANCE THE BEAUTIFUL SOUNDS.

THE INTERIOR DESIGN OF THE LIBRARY/MEDIA CENTER INVITES STUDENTS INTO THE STATE-OF-THE-ART AREA.

Safety enhancements—including the security, fire, and telephone systems—were upgraded, and parking facilities also were renovated to provide more space and a first-ever bus drop-off area. Combined, the changes provide a code-compliant school.

Franklin Lakes School District effectively created an environment to satisfy its mission to develop in students a lifelong commitment to learning, a sense of personal and social responsibility, healthy self-esteem, and a respect for and appreciation of diversity. ■



FLOOR PLAN

MIDDLE SCHOOLS
NEW CONSTRUCTION

Earl R. Flansburgh + Associates, Inc.

77 North Washington Street
Boston, MA 02114

Earl R. Flansburgh, FAIA, NA
(617) 367-3970

Design team

Earl R. Flansburgh, FAIA, NA
Principal-in-Charge

Alan S. Ross, AIA
Project Architect

Client

Easton Public Schools
(508) 230-3200

Grade span
4-6

Current building capacity
1,250

Current building area
145,000 square feet

Total project costs
$21 million

Cost per square foot
$145

Space per student
116 square feet

Cost per student
$16,776

Completion date
July 1997

Easton Intermediate School
Easton, Massachusetts

Earl R. Flansburgh + Associates, Inc.

This new intermediate school is part of a comprehensive facilities plan to resolve overcrowding at the elementary school level, to provide space for projected enrollment increases, and to provide a modern school facility to meet the educational and technological needs of the town's intermediate students.

Located within an 80-acre educational campus including the Oliver Ames High School, the Easton Junior High School, and the Parkview Elementary School, this new school is situated between the high school and junior high school and bordered by two residential neighborhoods and adjacent to conservation land. This two-story, 148,000-square-foot building accommodates a total of 1,250 students in grades four through six. The design concept is two 625-pupil schools under one roof that share centrally located core facilities with each having its own separate entrance and administration. Both schools house 25 general classrooms clustered in groups of three or four, science and computer labs, and music and art studios. All classrooms and core space are fully wired for telecommunications and information sharing. Core space is zoned for after-hours community use and includes a centralized Library/Media center, a high-school-size divisible gymnasium with bleachers and a stage, a cafeteria, and a kitchen.

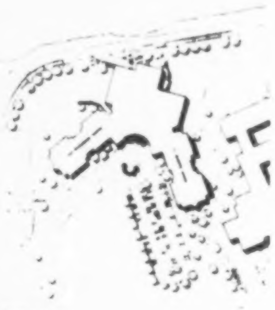
The school reflects the town's strong architectural heritage embodied in several buildings designed for the Ames family of Easton by H.H. Richardson and a park by Frederick Law Olmsted. Familiar, comfortable building forms and materials, notably pitched roofs, slate, copper, brick, and split-faced concrete block, reflect this heritage. Materials and systems maximize energy efficiency. Numerous conservation features include: interior corridor walls of reversible maple-veneer panels to reduce maintenance; digital HVAC controls and motion-activated lighting with electronic ballasts and high-efficiency fluorescent bulbs; and cupolas and dormers to provide natural as well as mechanical ventilation. ■

LOBBY TO H.H. RICHARDSON SCHOOL WITH CENTRAL STAIR TO SECOND FLOOR

TWO-STORY LOBBY SPACE AND ENTRANCE TO GYMNASIUM

ENTRY ROAD AND DROP-OFF AREA

TYPICAL CLASSROOM POD


SITE PLAN

MIDDLE SCHOOLS
NEW CONSTRUCTION

Amstrong, Torseth, Skold and Rydeen, Inc.

4901 Olson Memorial Highway
Minneapolis, MN 55422
Paul Erickson, AIA
(612) 545-3731

Design team

Paul Erickson, AIA
Principal-in-Charge

Tammy Magney, AIA, REFP
Educational Planning/Design

Myrene Biernat, AIA
Project Manager

Client

Independent School District 197
(612) 681-2300

Grade span
5-8

Current building capacity
800

Current building area
130,000 square feet

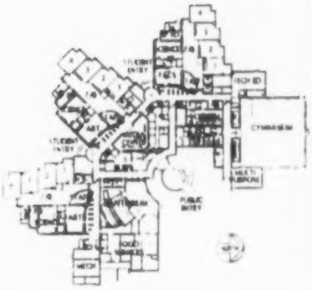
Total project costs
$12 million

Cost per square foot
$92

Space per student
163 square feet

Cost per student
$15,000

Completion date
August 1997

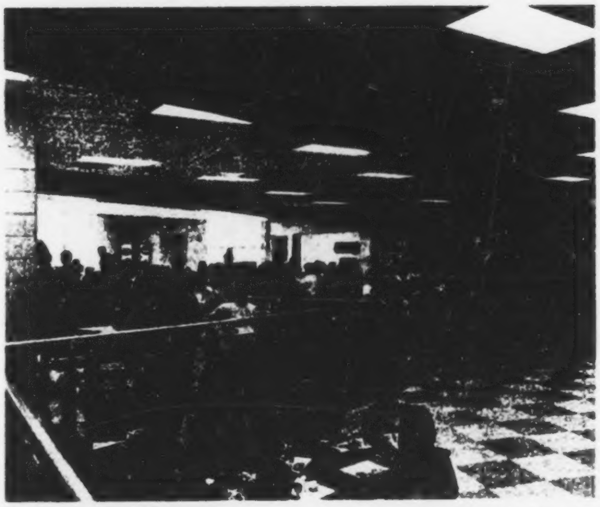


FLOOR PLAN

Friendly Hills Middle School
Mendota Heights, Minnesota

Amstrong, Torseth, Skold and Rydeen, Inc.

Friendly Hills Middle School encompasses "real world" exploratory curriculum, team teaching, and team and cooperative learning. All facets are bound within an expanded curriculum and building that literally envelops the concept.

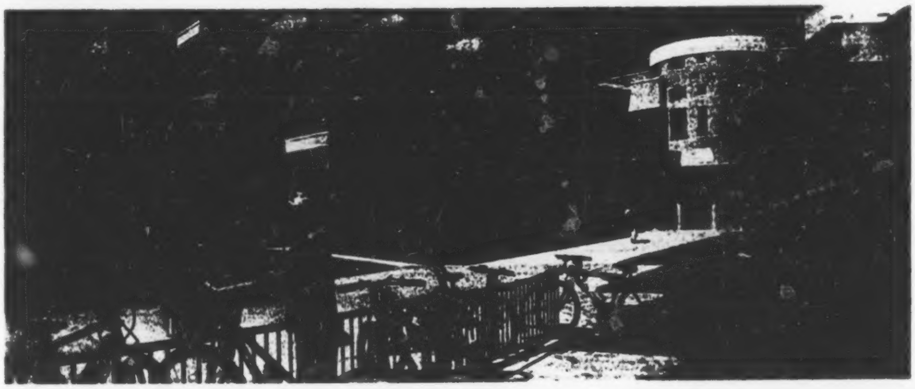


MULTIUSE CAFETORIUM

OPEN CLASSROOM

Active learning is key to the students' success and mastery of the curriculum. The school uses the "house" concept, with six houses of 150 students each. Located within each house are four classrooms (two of which are open to each other), a special education classroom (to truly mainstream students), and a breakout area with windows to the classrooms, which are divided spatially to provide smaller and more intimate areas for learning, reading alone by a window, or cooperative learning within one of the conference rooms.

Unlike most middle schools, this school begins with grade five, rather than six, and continues through grade eight. This configuration was planned to alleviate overcrowding in elementary schools and is expected to create longer-term parental involvement. ■



MAIN STUDENT ENTRY/BUS LOADING AREA

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

URS Greiner, Inc.

546 S. Meridian, Suite 714
Indianapolis, IN 46225

Richard W. Bay, AIA
(317) 636-7469

Design team

Richard W. Bay, AIA
Project Manager

Mark R. Bay, AIA
Project Architect

Kevin D. Harvey
Project Team

Client

Greenwood Community School Corp.
(317) 889-4060

Grade span
6-8

Current building capacity
900

Current building area
149,460 square feet

Building area before addition/renovation
113,133 square feet

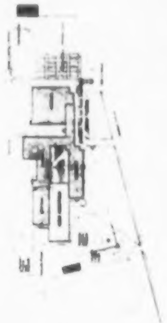
Total project costs
$6.2 million

Cost per square foot
$41

Space per student
166 square feet

Cost per student
$6,900

Completion date
August 1996



SITE PLAN

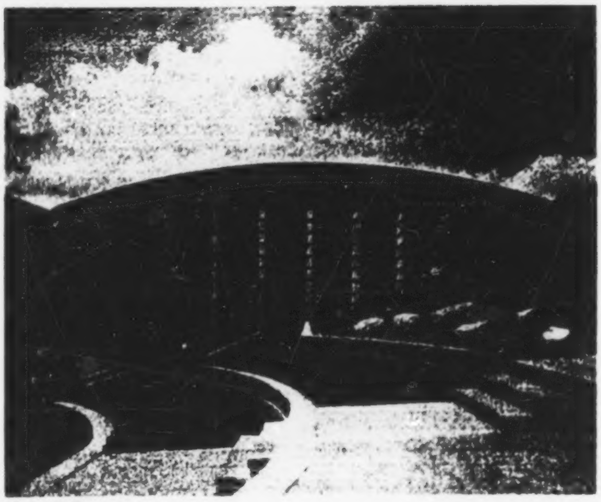
Greenwood Middle School
Greenwood, Indiana

URS Greiner, Inc.

The challenge of expanding and renovating a facility that was built in 1949 with additions in 1953, 1955, 1965, and 1980, was to improve the circulation patterns for a building that combined a two-story wing connected at only one point to a one-story wing. Adding to the problem was a severely sloping site that separated the two classroom areas.

The design solution responds to both issues by utilizing the previously neglected site with a structure that connects both wings with a monumental stair, which divides a new media center from a tiered and landscaped courtyard. The stair stretches between brick pylons, providing intermediate landings that create and frame views into the courtyard and its outdoor classroom. Corresponding concrete block pylons organize the corridor and media center, again creating and framing views of the courtyard. The block pylons are detailed with projection courses that are highlighted by color, shape, and shadow.

The new auxiliary gymnasium responds to the sloping site by matching the slope with poured concrete bleacher seating. This also allows the existing foundation to remain undisturbed as the risers step down from the existing one-story building. ■



Murphey Studios Inc.

NEW COURTYARD

NEW GYMNASIUM

MEDIA CENTER CORRIDOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

Wakely Associates Mt. Pleasant, Inc.

131 S. Main Street
Mt. Pleasant, MI 48858

John P. Jensen, AIA
(517) 773-9945

Design team

John P. Jensen, AIA
Principal/Designer

Keith Wirth, AIA
Project Manager

Earl Hartman, PE
Mechanical Engineer

Dion Dixon, PE
Electrical Engineer

Client

Harrison Community Schools
(517) 539-7871

Grade span
6-8

Current building capacity
575

Current building area
77,830 square feet

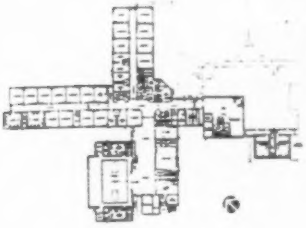
Total project costs
$6.3 million

Cost per square foot
$81

Space per student
135 square feet

Cost per student
$10,683

Completion date
August 1996



FLOOR PLAN

Harrison Middle School
Harrison, Michigan

Wakely Associates Mt. Pleasant, Inc.

This innovative middle school project was a major part of the school district's complete facilities overhaul and upgrading process for six school sites and a maintenance facility. This rural, economically deprived community needed a modern facility reflecting community pride as well as cost effectiveness.

The district asked Wakely Associates to envision a design of the new 575-student middle school to visually complement its neighbor, the existing high school (also by Wakely Associates, 1973). The facility houses students in grades 6-8. The brick match, in color and detailing, borrows from the existing older building. A sloped roofing system of steel joists on load-bearing masonry utilizes a colored elastomeric membrane.

MEDIA CENTER/THE 'HUB CONNECTOR' SERVING THE HIGH SCHOOL AND MIDDLE SCHOOL

BUILDING ENTRY—MEDIA CENTER WITH CLERESTORY LIGHTS SHOWN PROMINENTLY AT LEFT

A prominent feature of the new 77,830-square-foot middle school is its media center connection, which is shared by both middle school and high school. Natural light abounds in the media center through clerestory and picture windows. Classrooms, as well as student commons areas, also are filled with natural light. Exterior brick is brought inside to provide an aesthetic continuity. Clean, straight corridors enhance administrative control.

The staff was given extensive input into development of the educational program, as well as the layout and appointments of the building.

Wakely Associates not only provided completed planning, design, and engineering, but also complete management of the building program as well.

Educational program objectives included:

- a separate wing for the sixth grade, permitting block scheduling;
- an early exposure to computerized technical education realized through the development of a staff-partnered layout of computerized career stations;
- combining media center resources from the high school and middle school to provide the "connector" for the two distinct secondary buildings. Extended hours promote community use. The media center features technologically enhanced distance learning, media retrieval, and an indirect lighting system promoting consistent light levels and flexibility in arrangement;
- a future expansion of classrooms is easily accomplished with a winged corridor configuration; and
- a multiple-functioning cafeteria/commons serving as a social center, food court, and performance area. The cafeteria/commons opens on to the gymnasium and utilizes the bleachers and gym floor seating areas during performances.

GYM WITH PERFORMANCE PLATFORM. CAFETERIA IS BEHIND MOVABLE WALL ON STAGE. (SCHOOL COLORS ARE USED THROGHOUT THE PROJECT.)

The visually, harmoniously linked schools are situated in a park-like wooded campus that provides a tranquil setting for the community's secondary complex. ■

MIDDLE SCHOOLS
NEW CONSTRUCTION

Vitetta Group

3711 Briarpark, Suite 300
Houston, TX 77042

Stephen Carlidge, AIA
(713) 789-9141

Design team

Stephen Carlidge, AIA
Principal-in-Charge

Jirair Youssefian, AIA
Senior Designer

Rob Nash, AIA
Studio Manager

Barry Sturrock, AIA
Project Manager

Anthony Carango
Light Designer

Hali Nili
Interior Designer

Rodger Halterman, PE
Mechanical Engineer

Rafael Velazco
Electrical Engineer

Todd Gerhardt, PE
Structural Engineer

Client

East Central Independent
School District
(210) 648-7861

Grade span
7-8

Current building capacity
1,200

Current building area
159,000 square feet

Total project costs
$11.5 million

Cost per square foot
$73

Space per student
133 square feet

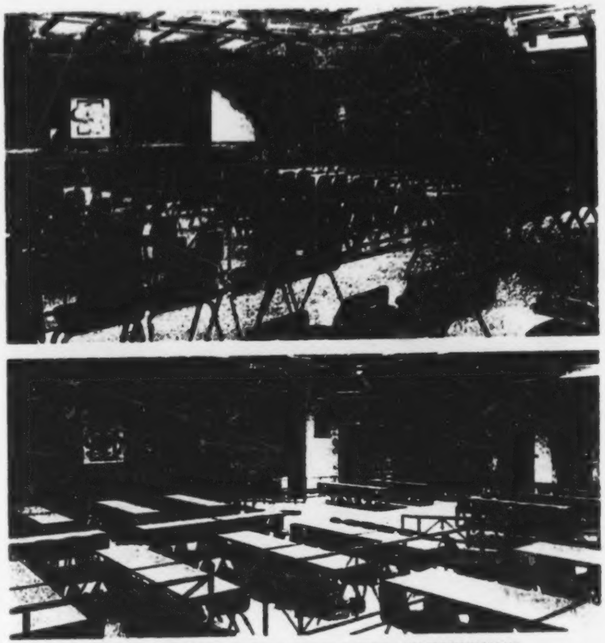
Cost per student
$9,620

Completion date
May 1997

Heritage Middle School San Antonio, Texas

Vitetta Group

The new Heritage Middle School is the result of an extraordinarily intense and highly interactive programming and design exercise among the design team, district staff, and board members. The new facility is designed to support a team-oriented program for 1,200 students in the seventh and eighth grades and master-planned for future expansion to 1,400 students. Each grade is provided its own "academic house" containing four pods, each comprising four classrooms, a science lab, and associated support spaces. Each pod supports an interdisciplinary team of five teachers and 150 students. Each team teacher is assigned a dedicated classroom or lab, and students of a particular team remain in their pod for all of their academic classes.



NEW CAFETORIUM SHOWN IN ASSEMBLY AND DINING CONFIGURATIONS.

INSTRUCTIONAL MEDIA CENTER

DETAIL OF MAIN ENTRANCE

The academic houses radiate from a central core facility that contains central administration, the Instructional media center, computer labs, art, home economics, industrial technology, and music facilities as well as the cafetorium and athletic complex consisting of two full-size gymnasiums, weight room, and locker room facilities. The cafetorium features a tiered configuration, thereby affording improved site lines for assembly/performance use. The academic portion of the complex can be locked after hours, facilitating extended hours and weekend use of the core facilities by the community.

Architecturally, the building takes its cues from two regional features: the large country farmhouses and mission-style buildings prevalent primarily in religious buildings of the region. ■

MIDDLE SCHOOLS
NEW CONSTRUCTION

The Design Forum Inc.

124 E. Fulton, Suite 600
Grand Rapids, MI 49503

Neale L. Bauman, AIA, CCS
(616) 454-1398

Design team

Neale L. Bauman, AIA, CCS
Principal-in-Charge

Dave Wilkins, AIA
Project Architect

Amy Zeboor
Electrical Designer

Steve Hess, PE
Mechanical Engineer

Client

Kelloggsville Public Schools
(616) 538-7460

Grade span
6-8

Current building capacity
630

Current building area
114,165 square feet

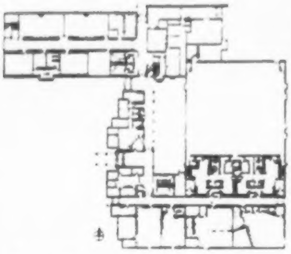
Total project costs
$9.6 million

Cost per square foot
$85

Space per student
181 square feet

Cost per student
$15,238

Completion date
September 1994



FLOOR PLAN

Kelloggsville Middle School
Grand Rapids, Michigan

The Design Forum Inc.

This new middle school for Kelloggsville Public Schools was constructed on a tight, 11-acre urban site. The program required a design to support team teaching for 630 students in grades six through eight. The result was a multistory structure organized into three general wings—classrooms, office/gym/public area, and unified arts.

The three-story classroom wing coordinates grade level by floor. Team areas are organized around a workroom/office with adjacent team classrooms. Science rooms on each floor share common facilities—a greenhouse/prep area and a storage room. A computer lab anchors the end of each wing and is adjacent to the media center.

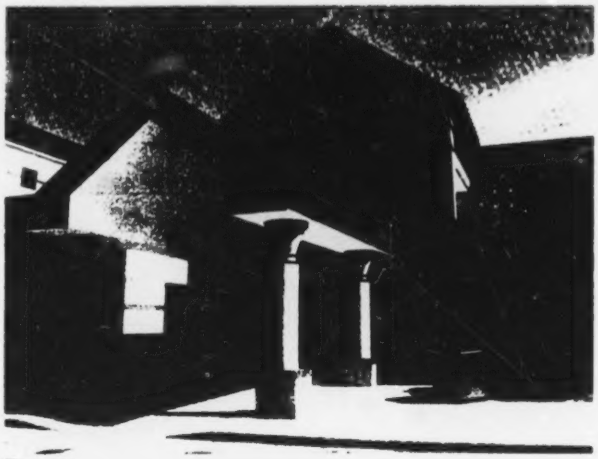
The two-story media center is accessible from the second and third floors and shares in the activities of the entrance level by serving as the hub to the classroom wing. The cafeteria doubles as a common space and gym lobby for flexibility and efficiency of the overall plan, and fronts the administration area. The gymnasium functions as an arena for competitive sports for the district with seating for 2,000.

The unified arts wing is separated from the multistory portion of the building. Music, art, life skills, and applied technology are taught here.

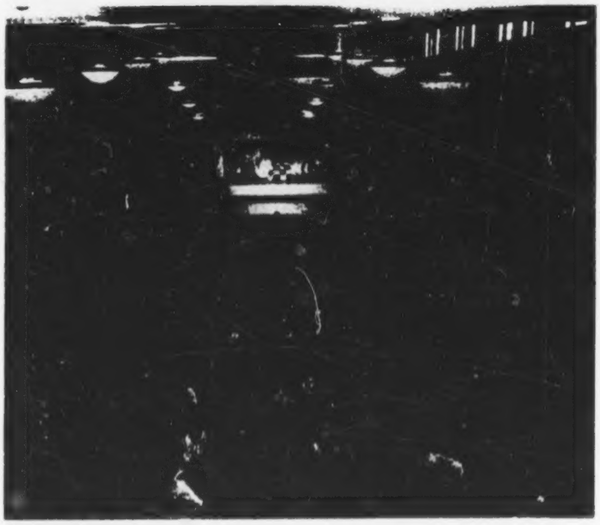
Technology is used throughout the building. Telephones, televisions, and VCRs are in each classroom, and every computer is networked and interactive.

The exterior is a combination of brick, ceramic tile, glass, and EIFS for minimal maintenance. The single-story areas of the building step up to meet the height of the gym and the three-story classroom area. The exterior was designed to reduce the mass of the building and render a light and friendly appearance. ■

MEDIA CENTER



EXTERIOR



CAFETERIA

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MIDDLE SCHOOLS
New Construction

Lesko Associates, Inc.

Gemini Tower II
2001 Crocker Road, Suite 200
Cleveland, OH 44145

Nicholas Lesko, FAIA
(216) 835-0850

Design team

Nicholas Lesko, FAIA
Project Administrator

Edward C. Lesko, AIA
Design

Syed Abbas, AIA
Project Architect

David Andreano, AIA
Fixed Equipment

Client

Olmsted Falls City
(216) 235-7979

Grade span
6-8

Current building capacity
850

Current building area
123,140 square feet

Total project costs
$11.1 million

Cost per square foot
$89

Space per student
144 square feet

Cost per student
$13,009

Completion date
January 1997

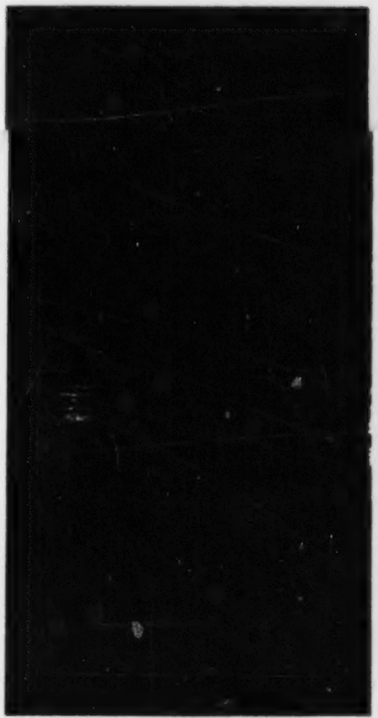
Olmsted Falls Middle School Olmsted Falls, Ohio

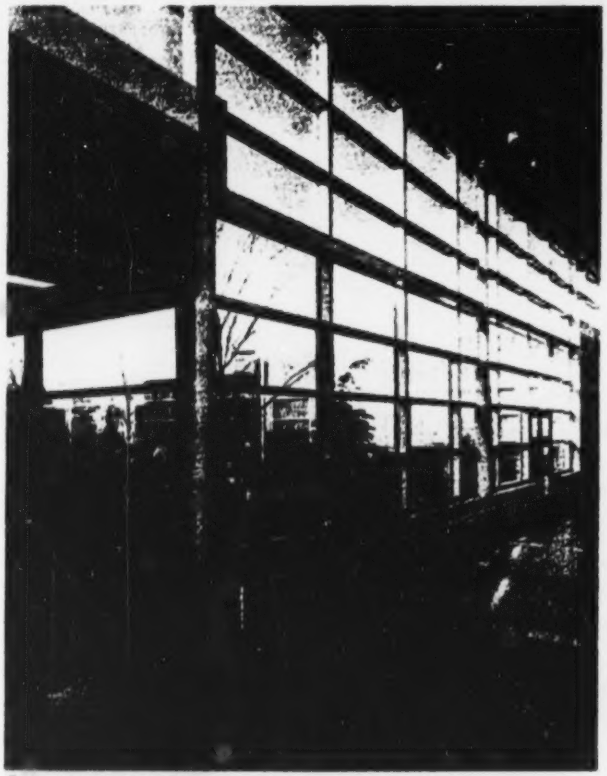
Lesko Associates, Inc.

The program called for a new middle school built on a 61-acre site that reflects the school district's educational philosophy and commitment to community use of the facilities.

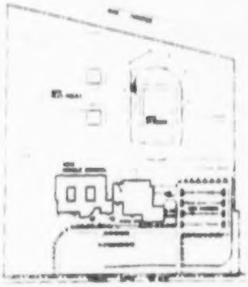
Organized in seven pods, the academic area is adjacent to a media center, computer labs, foreign languages, and special classrooms. Each pod contains a science lab, individual centers for math, English, and social studies, staff offices, and planning centers. This configuration reinforces a program calling for staff teaming and interdisciplinary teaching techniques.

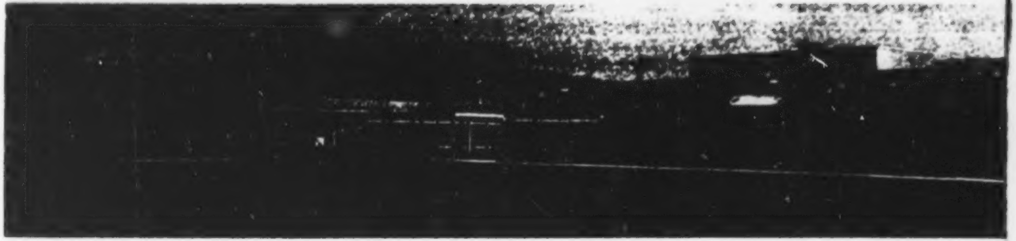
The focal point of the academic area is the media center


Main entrance canopy facade (night)


Courtyard with corridor

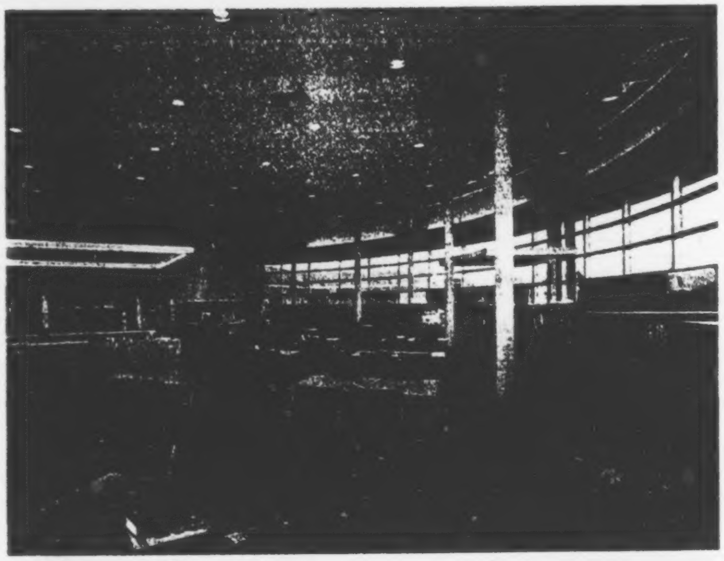
Cafeteria


Site plan

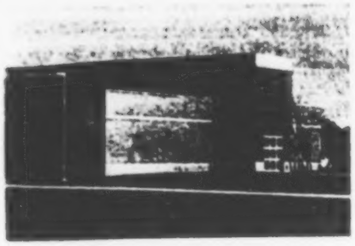

Entry elevation

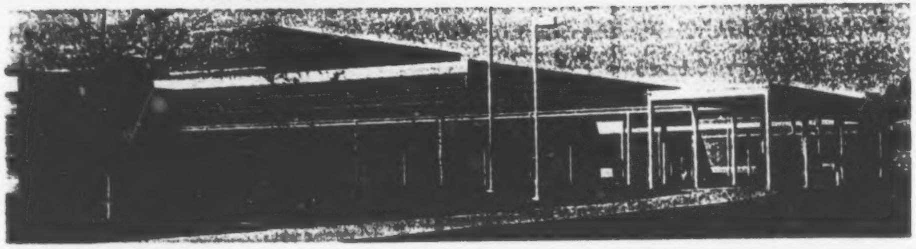
containing the district's building-wide technology network center. Other portions of the school house the cafetorium, gymnasium, auxiliary gym, music suite, industrial technology lab, art section, and home economics area.

Architecturally, the school has a bold, straightforward look with a facade that provides visual interest and harmony. The dominant forms of the glass fenestration and the adjacent masonry walls are linked together by horizontal masonry bands and an aluminum fascia. The media center and cafeteria are clearly defined and easily identifiable as important elements in the overall composition of the building. Two courtyards flood the academic area with natural light, which enhances the spaces and environment of the entire school. ■



Media/library center





Main entrance facade

MIDDLE SCHOOLS
New Construction

Hidell & Associates Architects
3033 Kellway Drive, Suite 120
Carrollton, TX 75006
Bill Hidell, AIA
(972) 416-4666

Design team

Lake Flato Architects
Design Architect

Bill Hidell, AIA
Principal

Ed Kepner
Project Architect

Kathryn Miller
Staff Architect

Richard Torrez
Production

Client

Greenhill School
(972) 661-1012

Grade span
5-8

Current building capacity
400

Current building area
33,800 square feet

Total project costs
$3.8 million

Cost per square foot
$113

Space per student
85 square feet

Cost per student
$9,575

Completion date
June 1996

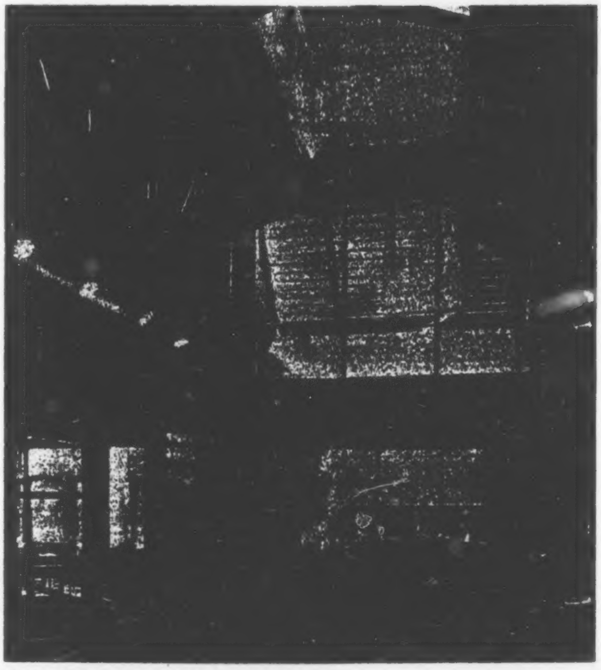
Levy Middle School
Addison, Texas

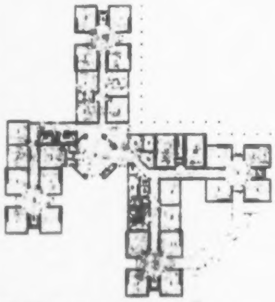
Hidell & Associates Architects

The Greenhill administration, while committed to the middle school concept (grades five through eight), recognized the physical and emotional development differences between an 11-year-old student and a 14-year-old student.

As a result, the design of the new Levy Middle School makes a clear division of grade levels. Each grade is organized around the core curriculum courses with an open pod and teacher work area to facilitate student-teacher interaction. All common curriculum courses (science, foreign language, and computer science) are located at the intersection of each wing. The school's multipurpose assembly room becomes the anchor of the four grade wings. The locker corridors of each wing are used to display student work on a changing basis. ■

LOBBY


GRADE LEVEL POD AND TEACHER WORK AREA


FLOOR PLAN

QUADRANGLE ENTRANCE

MIDDLE SCHOOLS
NEW CONSTRUCTION

HMC Group
3270 Inland Empire Blvd.
Ontario, CA 91764
John S. Nichols, AIA
(909) 989-9979

Design team
Jim Gilliam, AIA
Principal
Chris Taylor, AIA
Project Director
Brian Staton
Project Manager
Robert Jacob, AIA
Project Designer

Client
Ontario-Montclair School District
(909) 459-2505

Grade span
6-8

Current building capacity
1,100

Current building area
79,000 square feet

Total project costs
$10.1 million

Cost per square foot
$128

Space per student
80 square feet

Cost per student
$9,182

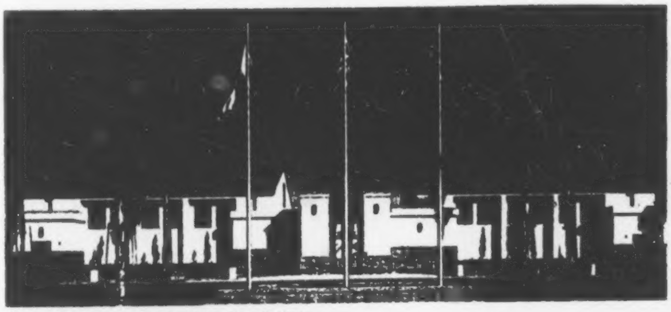
Completion date
June 1996

CAMPUS PLAN

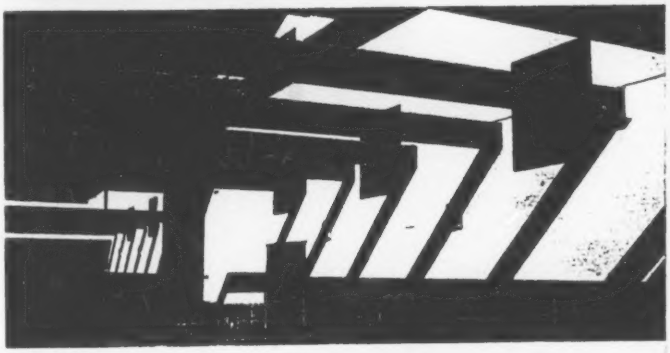
Oaks Middle School
Ontario, California

HMC Group

When the Ontario-Montclair School District (OMSD) in Ontario, Calif., needed a new middle school to accommodate its growing student population, its primary focus was to create a facility that would serve the students of OMSD in ways that had not been attempted before. The district felt that this campus should be a model for 21st-century schools that must be created to address the educational needs of the future. To meet this goal, the new school had to incorporate the latest in educational design philosophies and technology while providing an aesthetically pleasing and functional facility that would allow for future changes.



ADMINISTRATIVE AND LIBRARY ENTRANCE



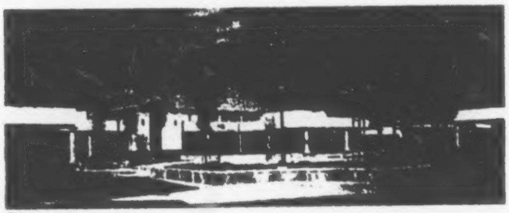
LUNCH AREA

HMC Group of Ontario was the architectural firm hired to meet this charge and design the Oaks Middle School. The result of the design efforts was a 79,000-square-foot campus with 30 classrooms, an administration building, a multipurpose room/gymnasium; library, outdoor tennis, basketball, and handball courts; and sports fields. The Oaks Middle School's traditional Spanish architectural theme is derived from the rich ethnic heritage of the surrounding neighborhood. The design combines regional materials and a multiple courtyard composition to define scale, establish a contextual relationship with the surrounding neighborhood, and respond to site features.

The classroom buildings are designed around four smaller courtyards, which break the large school into smaller units. Although this facility will accommodate up to 1,100 sixth- through eighth-grade students, the educational program is based on California's "Caught in the Middle Concept," which helps to create a small school atmosphere.

The visionary design boasts a complete computer network for all classrooms with level five cabling within the buildings and fiber-optic cabling between the buildings. Through complete voice, data, and video technology, the classrooms, administration, and media/learning resource center all can communicate with one another.

"The Oaks Middle School design is a pleasant change from the school architecture of the past," said Dr. Thomas W. Garnella, assistant superintendent, business services for Ontario-Montclair School District. "When I entered the campus for the first time, I felt as if I were visiting a small university. The design is cheerful, safe, roomy and, most importantly, provides a functional learning environment for OMSD students in the 21st century." ■



EXTERIOR

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MIDDLE SCHOOLS
NEW CONSTRUCTION

DLR - John Graham Associates

900 Fourth Ave., Suite 700
Seattle, WA 98164

Craig Mason, RA
(206) 461-6000

Design team

Craig Mason, RA
Project Manager/Architect

John Blackwell, AIA
Design Architect

Steve Hubbs, PE
John Benson
Electrical Engineers

Rand Conger, PE
Mechanical Engineer

Doug Foster, PE
Civil Engineer

Scott Rose
Construction Administrator

Client

Camas School District
(360) 817-4400

Grade span
7-9 or 6-8

Current building capacity
880

Current building area
106,810 square feet

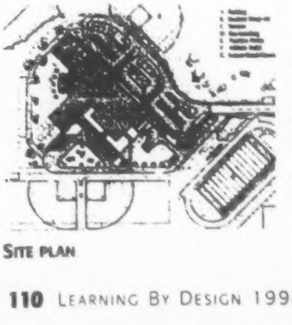
Total project costs
$12.4 million

Cost per square foot
$116

Space per student
122 square feet

Cost per student
$14,144

Completion date
September 1996



SITE PLAN

Skyridge Mid School
Camas, Washington

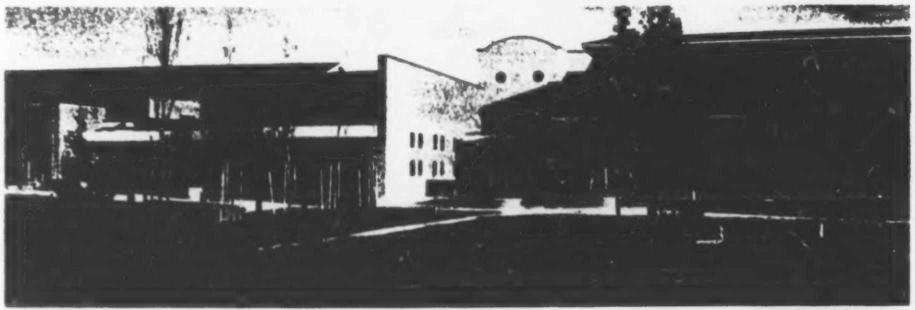
DLR - John Graham Associates

Education at Skyridge Mid School focuses on technology, interaction between students and staff, and basic studies. Skyridge supports the school-within-a-school teaching philosophy in which teaching teams meet the core curriculum needs of students in small, nurturing environments. The school district also wanted a flexible facility capable of serving the community into the 21st century.

Students enter the school through the student center, an area that encourages learning and socialization between students and staff before and after class. Three self-contained classroom wings provide the opportunity to learn in a smaller, secure environment. Visually and spatially, the technology area, library, and commons area—which are instrumental to young and impressionable minds—establish the character of the building.

The masonry building has a combination of wood and steel roofing. The fully accessible mechanical system is on the mezzanine level, allowing the maintenance staff to repair the operating system without disrupting classes. ■

ROTUNDA



EXTERIOR

MEDIA CENTER

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

Rhinebeck Architecture & Planning PC
21 E. Market Street
Rhinebeck, NY 12572
J. Louis Turpin, AIA, AICP
(914) 876-2832

Design team

Excel Engineering, P.C.
MEP Engineers

M.G. McLaren, P.C.
Structural Engineers

J. Kenneth Fraser and Associates
Civil Engineers

The Berkshire Design Group
Landscape Design

Barry, Bette & Led Duke, Inc.
Construction Managers

Client

Hudson City School District
(518) 828-4815

Grade span
5-8

Current building capacity
900

Current building area
131,000 square feet

Building area before addition/renovation
81,000 square feet

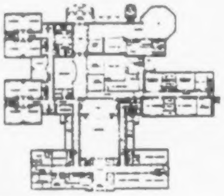
Total project costs
$10 million

Cost per square foot
$115

Space per student
145 square feet

Cost per student
$11,000

Completion date
September 1997



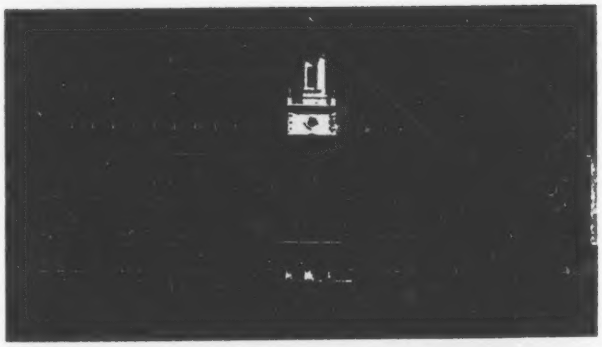
FLOOR PLAN

M.C. Smith Middle School Hudson, New York

Rhinebeck Architecture & Planning PC

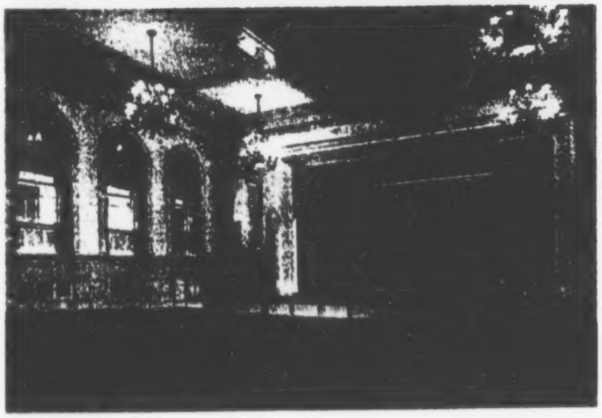
The M.C. Smith Middle School is a historic 1930s-era structure with cupola top in classic Georgian style. Changes in the programming and delivery of middle school education, as well as increases in student enrollment, made the building's layout, as originally organized, obsolete.

Preliminary studies of the building's systems indicated that, despite its age, the building's infrastructure was in good condition, making it cost effective to renovate and adaptively reuse the school.



EXTERIOR

ART CLASSROOM



AUDITORIUM

Rhinebeck Architecture & Planning was commissioned to design a 50,000-square-foot addition and a corresponding 20,000-square-foot renovation to the existing 81,000-square-foot facility. The planning approach creates a true middle school environment that fosters team teaching and breaks down the scale of the facility.

Small classroom clusters designed to house each of the four grade levels were designed to flank the original building. The cafeteria and new departments for music, technology, and the arts are similarly clustered around the existing building, extending its architectural language. A new sloping corridor system, which wraps around the former exterior walls of the handsome auditorium, connects each of the building's five original levels, reducing the daily use of the stairs and elevators. A blend of gables, pitched roofs, brick, and stone trim work together to create a series of discreet architectural elements purposefully placed to the rear of the existing building to complement the prominent original structure. ■

EXTERIOR

MIDDLE SCHOOLS
PROJECT IN PROGRESS

Ballou, Justice & Upton and Associates Architects

2702 Parham Road, Suite 300
Richmond, VA 23294

Billy E. Upton, AIA, REFP
(804) 270-0909

Design team

Billy E. Upton, AIA, REFP
Principal-in-Charge

Dilip Chakraborty, RA
Project Manager

J. Dudley Parrish, Jr., AIA
Specifications

Jack R. Reynolds
Construction Manager

J. Dian Johnson, ASID
Interior Designer

CEK, Inc.
Mechanical/Electrical/Plumbing Engineers

Stroud, Pence & Associates
Structural Engineers

Koontz-Bryant, PC
Civil Engineers

Ambassador Enterprises
A/V Consultant

Food Service Equipment
Food Service Consultant

Client

Richmond City Public Schools
(804) 780-7700

Grade span
6-8

Current building capacity
850

Current building area
124,685 square feet

Total project costs
$12.3 million

Cost per square foot
$98

Space per student
146 square feet

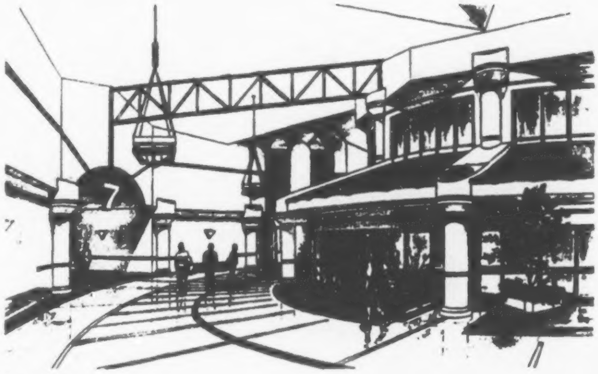
Cost per student
$14,428

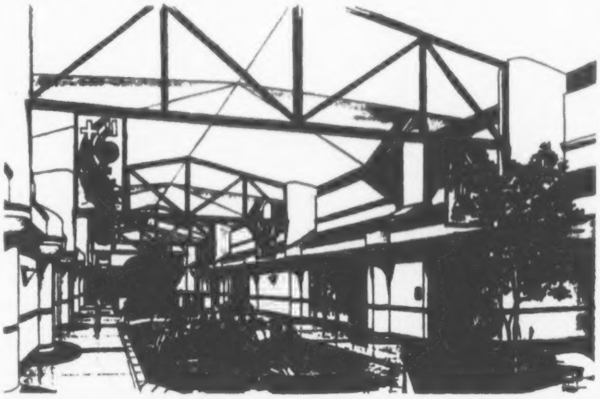
Completion date
August 1998

Southside Middle School
Richmond, Virginia

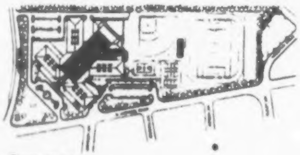
Ballou, Justice & Upton and Associates Architects

The new Southside Middle School design is based on a "school-without-a-corridor" concept. Traditional narrow corridors lined with noisy lockers and bad acoustics have been replaced by large, open, naturally lighted spaces filled with warm colors and bright, cheerful accents. This arrangement allows teachers and staff to observe and protect students while they are changing classes, and it gives the school a community atmosphere. This innovative school design clearly conveys to our children and the outside community that our children are valuable individuals who deserve the best educational environment we can offer.


INTERIOR


INTERIOR

Each grade-level house is clearly separated from the others, while still being conveniently located for easy access to the centrally located media center, exploratory wing, physical activity area, and dining area. The center core, commons/dining area, and athletic facilities can be easily secured for after-hours community use.


SITE PLAN

An integrated technology system provides voice, data, and video services throughout the building, including intercom and paging system, alert tones, and digital classroom telephone systems. Lesson-planning software permits creation of complex, multi-platform media presentation scripts that can be stored for later use. The system also provides classrooms with local input, two-way video, and distance-learning capabilities. ■

EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

DiCara Malasits and Rosenberg Architects
99 Essex Street
Maywood, NJ 07607
Lloyd A. Rosenberg, AIA
(201) 368-1616

Design team

Lloyd A. Rosenberg, AIA
Managing Principal

Joseph A. DiCara, AIA
Emery M. Malasits, AIA
Principals

John Scheckel, AIA
Project Architect

David Stoddard, AIA
Project Designer

Jeffrey Yao
Angela Tirri
Architectural Draftspersons

Melissa Candela
Interior Designer

Client

Sparta Township Board of Education
(973) 729-7886

Grade span
5-8

Current building capacity
1,100

Current building area
130,000 square feet

Total project costs
$23 million

Cost per square foot
$142

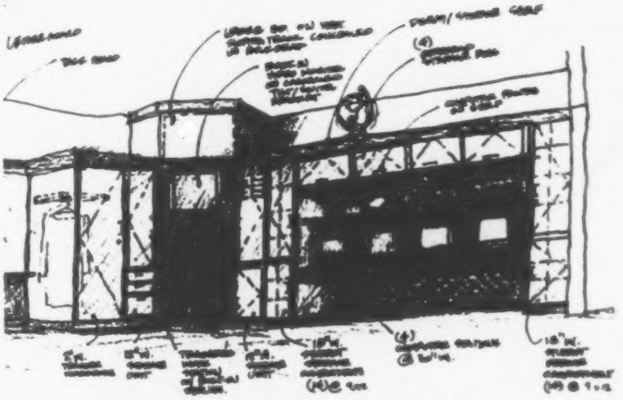
Space per student
118 square feet

Cost per student
$20,909

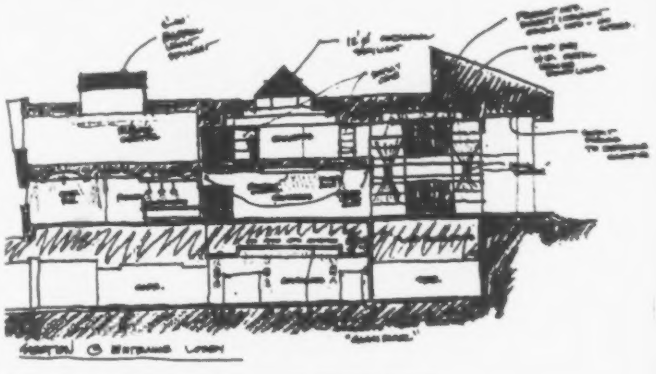
Completion date
September 1999

Sparta Middle School
Sparta, New Jersey

DiCara Malasits and Rosenberg Architects



BUILT-IN COMPUTER AND TEACHING STATION



ENTRANCE LOBBY PERSPECTIVE FEATURING INTERIOR DETAILS

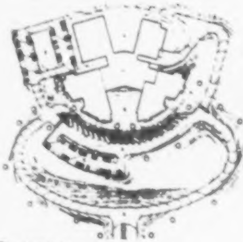
The Sparta Township School District will provide a comprehensive and diverse program in the new Sparta Middle School. The learning environment incorporates curriculum and teaching areas to foster honors, as well as special education classes. Specialty classrooms—including music, art, library/media center, remedial, and technology labs—are also incorporated into the 130,000-square-foot school design.

A strong emphasis on student involvement and building a sense of community is evident in the middle school design. A primary concern is to make the school available for civic and community functions, specifically for after-school and weekend use. The school will provide excellence in education as well as a variety of year-round recreational opportunities, cultural enrichment, and a high level of community spirit.

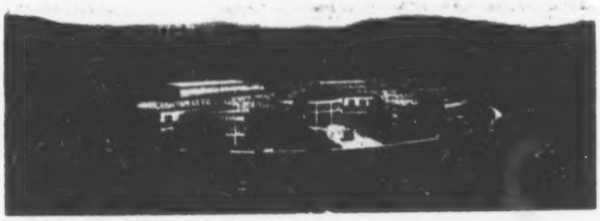
The district moved grades five and six from the primary schools, which creates flexibility in both staff and curriculum, including small- and large-group instruction and teaching teams. Grades five and six will remain child-centered in approach, while grades seven and eight will become a transition to secondary education and assume a more subject-centered approach to instruction. The new facility accommodates 1,100 students, but it is flexible for future use and expansion.

The district requested that the main entrance and administrative areas create a clear identification of the school. The library/media center serves as the center of instruction, therefore positioning it close to all classrooms.

Groundbreaking ceremonies were on June 15, 1997, and the estimated completion date is September 1999. ■



SITE PLAN



EXTERIOR RENDERING

BEST COPY AVAILABLE

MIDDLE SCHOOLS
NEW CONSTRUCTION

Mitchell and Hugeback Architects
12125 Woodcrest Executive Drive,
Suite 300
St. Louis, MO 63141

Larry Mitchell
(314) 878-3500

Design team

Larry Mitchell
Principal-in-Charge

Brian Zwick
Associate, Project Manager

Lou Henry
Project Architect

Regina Foan
Project Technician, Interiors

Nick Walker
Architectural Technician

Client

Wentzville R-IV School District
(314) 327-3800

Grade span
6-8

Current building capacity
900

Current building area
87,000 square feet

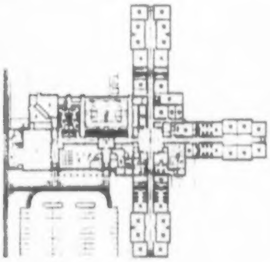
Total project costs
$5.7 million

Cost per square foot
$65

Space per student
97 square feet

Cost per student
$6,333

Completion date
August 1997



SITE PLAN

Wentzville South Middle School
Wentzville, Missouri

Mitchell and Hugeback Architects

This 900-student middle school was planned to create a community within a community in Wentzville, Mo., just west of St. Louis. Located in the southern region of a growing school district, Wentzville South Middle School is one of the three major structures planned for the 100-acre campus.

The district needed quality academic spaces in an economical building, allowing maximum value for each dollar expended. School officials also required easy monitoring of the corridor and entire building, as well as attractive, durable materials throughout the building.

The architectural solution was a multifingered, single-level structure providing each grade with its own identity. Each classroom community has spaces for the required academic activities along with a commons area for display of artwork and achievements. These virtually self-sufficient communities are united with the other communities at a centralized building core, or heart, of the school. From this area, one administrator can monitor every grade level during class changes.

The building commons area also provides a well-lighted

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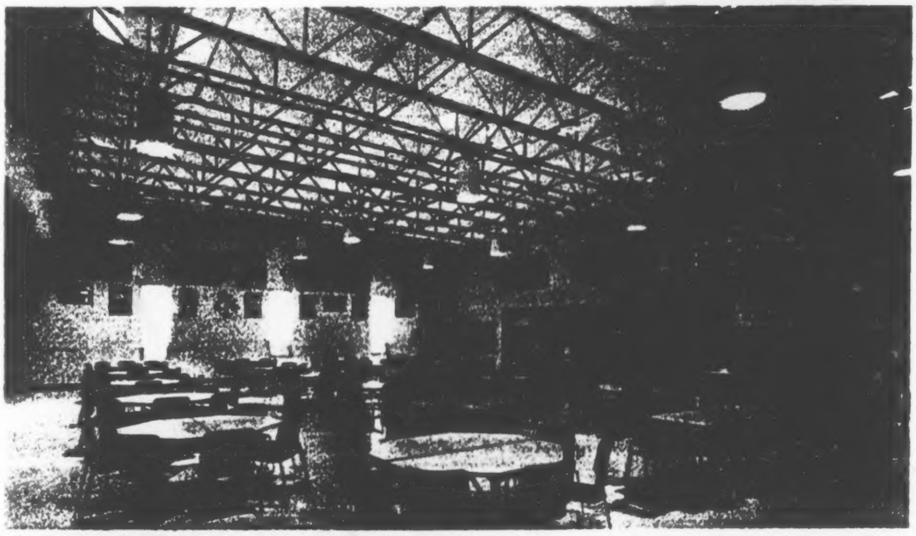
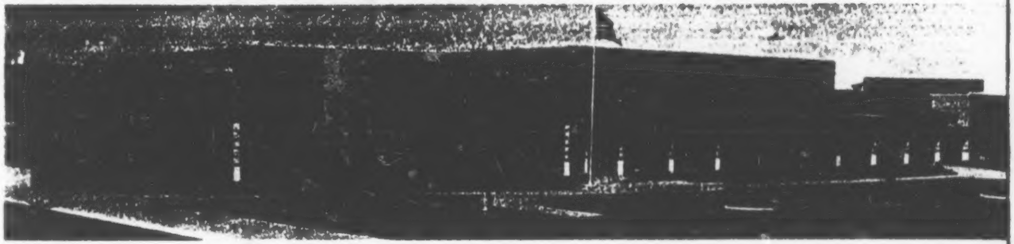
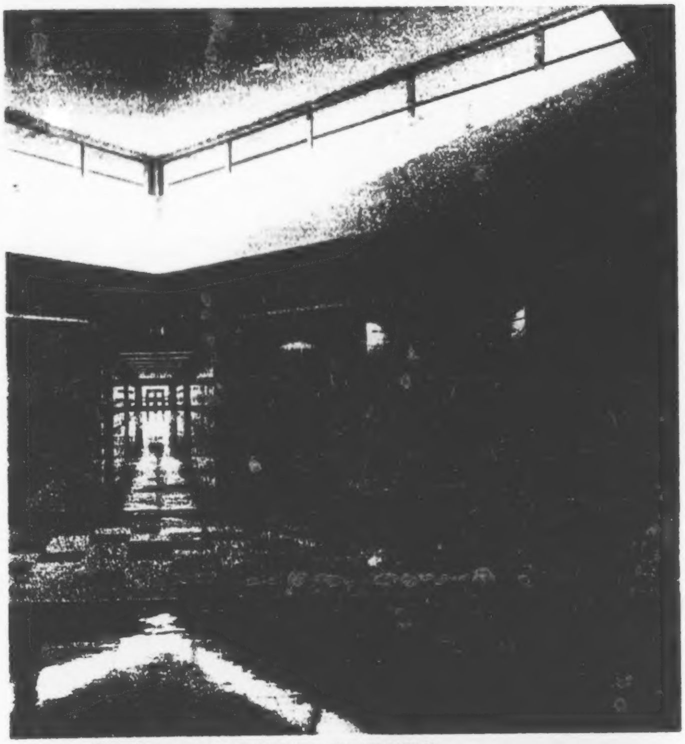


MULTIPURPOSE/CAFETERIA ADDS FLEXIBILITY TO COMMONS AREA.

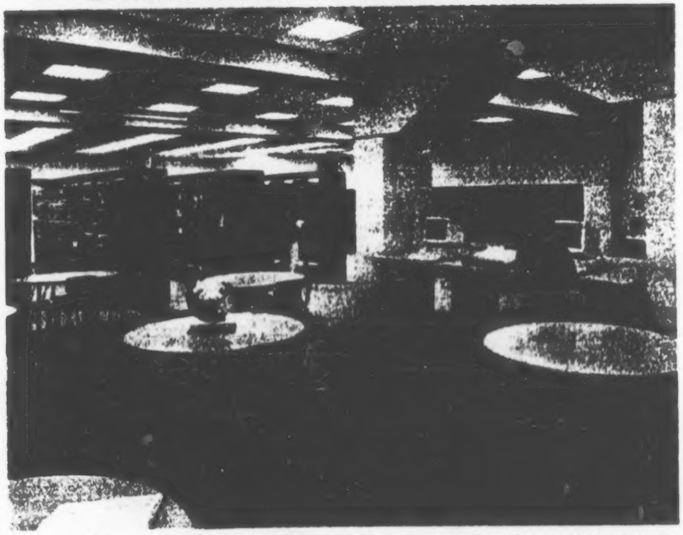


EXTERIOR

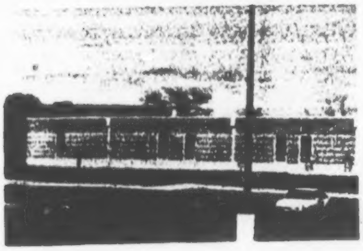


CLERESTORY GLASS ILLUMINATES THE COMMONS.

THE ANGLED WALLS OF THE INSTRUMENTAL MUSIC ROOM HELP TO CONTROL REVERBERATION.



SCULPTURED GYPSUM AND TEXTURED PAINT ADD INTEREST TO THE MEDIA CENTER.



clerestory area with reading/display niches. Common exploratory spaces—such as a computer lab, industrial technology and clean lab spaces, home economics, guidance, and a health clinic—are accessible from this central area. The building also contains support areas for administration, a media center, a gymnasium, instrumental and vocal music, and a multipurpose area that also serves as the cafeteria.

All student corridors are constructed of concrete masonry units, and special multicolor paint has been applied to an articulated colonnade within each classroom community and the commons areas. The exterior features split-faced concrete masonry units at the base of the wall with alternating bands of brick, forming a pleasing, durable, and economical facade.

To accommodate the district's goal of providing safe outdoor spaces, a site circulation pattern was developed that allows students to get on and off buses without crossing traffic lanes. Likewise, parents can drop off and pick up students in an automobile zone at the building's main entry. A window in the principal's office allows easy monitoring of the bus and automobile zones, and a door provides immediate access if closer monitoring is needed.

The mechanical system includes a water-source heat pump system with its own boiler and cooling tower providing heat or cooling to the glycol water loop. The heat pumps are located within the corridor ceiling. This system has proven to be one of the quietest and most economical systems in the district, and certainly the most "teacher-friendly," with individual thermostatic control of each classroom and space. ■

ENTRY COLONNADE

MIDDLE SCHOOLS
NEW CONSTRUCTION

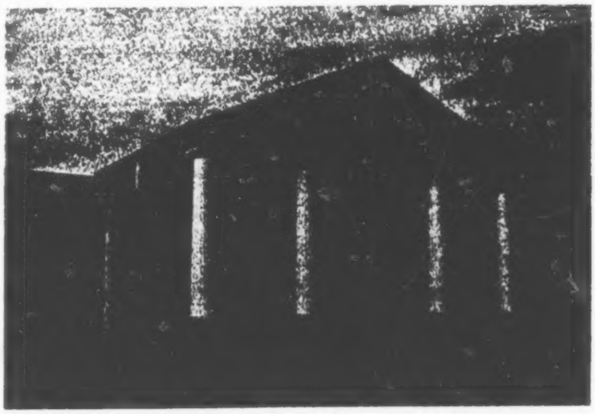
Sylvania Timberstone Junior High School Sylvania, Ohio

Stough and Stough Architects

The educational specifications called for a classroom arrangement usable as a traditional junior high school, and adaptable to middle school core classroom clusters in the future. In response, our design created six clusters of classrooms, each with a science classroom and three traditional classrooms. All classrooms are individually accessible from the main corridor, but also connected with a centrum, or small group classroom, for internal circulation and computer studies. Teacher offices and science preparation rooms are included in each cluster.

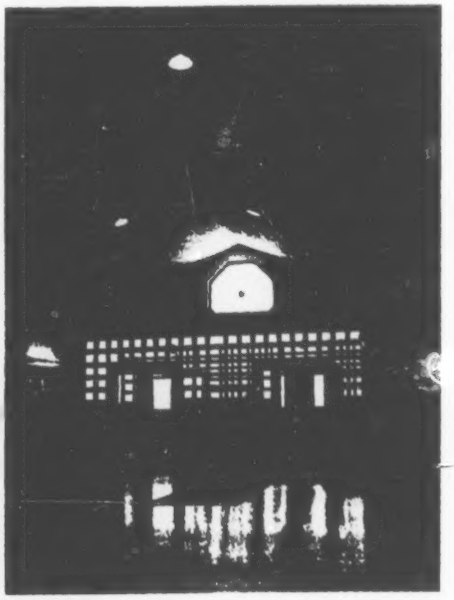
Building security for after-school activities was also an important design consideration. The building layout provides for two levels of limited building access controlled by gates and internal doors, and each provides conforming fire exit routes. After school hours, occupants can be limited to only the gymnasium, locker rooms, cafeteria, art room, tech prep, or music suite. The two-story classroom wing can be secured from the remainder of the building.

Federalist style architecture was chosen by the board of education to reflect the traditional values of the community. Sand mold face brick, limestone quoins and lintels, columned entrances, white aluminum trim, and shingled roofs were all chosen for their long life and low maintenance. ■



EXTERIOR

MAIN LOBBY



FRONT ENTRY

Stough and Stough Architects

4246 Sylvania Ave.
Toledo, OH 43623

Craig A. Stough, AIA
(419) 473-2751

Design team

Craig A. Stough, AIA
Principal-in-Charge

Mary L. Glowacki, AIA
Project Architect

Robert E. Stough, AIA
Specifications

Client

Sylvania Schools
(419) 885-7901

Grade span
6-8

Current building capacity
700

Current building area
103,100 square feet

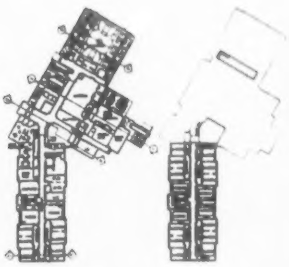
Total project costs
$9 million

Cost per square foot
$87

Space per student
145 square feet

Cost per student
$12,857

Completion date
August 1997



FLOOR PLAN

MIDDLE SCHOOLS
NEW CONSTRUCTION

SWBR Architects, P.C.

387 E. Main Street
Rochester, NY 14604

Edward S. Butcher, AIA
(716) 232-8300

Design team

Edward S. Butcher, AIA
Principal-in-Charge

Kenneth J. Smith, AIA
Project Architect

Steven V. Rebholz, AIA
Project Manager

Nicholas C. Christopher, AIA, CCS
Job Captain

Andrew J. Stouppe, PE
Structural Engineer

Client

Rochester City School District
(716) 262-8378

Grade span
6-8

Current building capacity
1,000

Current building area
188,000 square feet

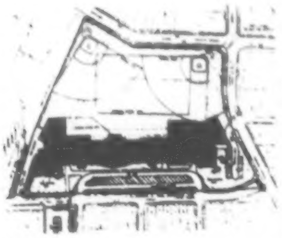
Total project costs
$19.2 million

Cost per square foot
$102

Space per student
188 square feet

Cost per student
$19,200

Completion date
September 1995



SITE PLAN

Dr. Freddie Thomas Learning Center Rochester, New York

SWBR Architects, P.C.

The Dr. Freddie Thomas Learning Center plays a key role in a new partnership between the Rochester City School District and the Lewis Street Center, a non-profit organization. The 188,000-square-foot facility is a community school housing 1,000 pupils in grades six through eight, and the family services department of the Lewis Street Center. The Lewis Street Center will encourage and administer community access to the school's facilities.

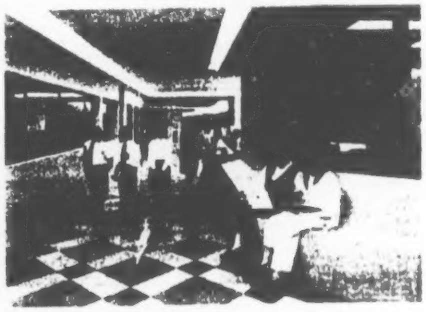
The middle school is organized as two "schools within a school." One school is located on the second floor, and another is located on the third floor. Each of these schools of 500 students has its own classrooms, teachers, and administrators. The two schools share the amenities on the first floor: the gym, pool, library, lecture hall, cafeteria, home and career skills facilities, and technology labs.

Creating a safe environment where students can concentrate on learning was a design priority. A layering system within the middle school ensures that certain areas of the building can remain secure while others are open. The school is designed to maximize the ability of teachers and administrators to supervise the corridors. The administrative offices for each school are located at the center of each floor and provide a complete line of sight from one end of the hall to the other.

The Dr. Freddie Thomas Learning Center is not only designed for students, but for their parents and the community at large. The center of a revitalization plan, it has a bold, solid appearance that is reflective of the role it will play as an anchor for the community. ■

FRONT ELEVATION

POOL



MAIN CORRIDOR AT HOUSE OFFICE

MIDDLE SCHOOLS
NEW CONSTRUCTION

HMFH Architects, Inc.

130 Bishop Allen Drive
Cambridge, MA 02139

Susan Elmore
(617) 492-2200

Design team

John F. Miller, FAIA
Principal-in-Charge

Stephen Friedlaender, FAIA
Planning/Design Principal

Mario Torroella, AIA
Design Director

Steven Millington, AIA
Project Manager

Bob Pahl
Douglas Sacra
Denise Ferris
Architects

Client

Chelsea Public Schools
(617) 889-8415

Grade span
6-8

Current building capacity
1,100

Current building area
140,000 square feet

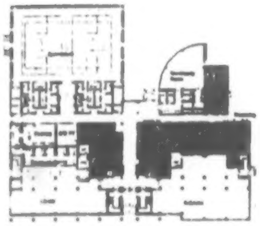
Total project costs
$19.7 million

Cost per square foot
$140

Space per student
127 square feet

Cost per student
$17,909

Completion date
September 1997



FLOOR PLAN

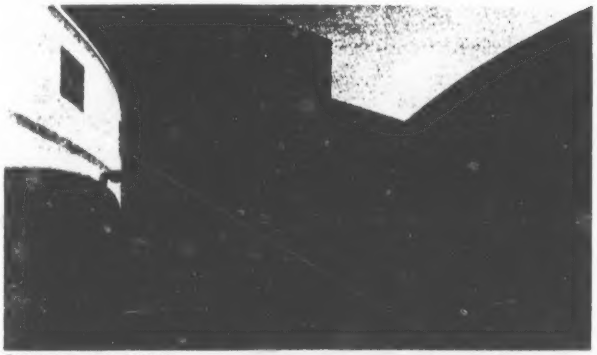
Williams Middle School Complex Chelsea, Massachusetts

HMFH Architects, Inc.

The Williams Middle School, part of Chelsea's total school replacement project, is an efficient complex that actually houses two individual schools, as well as community facilities. HMFH designed the facility so that the upper three levels of this building are divided into two independent middle schools made up of team clusters—five in one school, six in the other. Each cluster has three classrooms and a shared science room.

The ground floor contains administrative offices for each school, as well as shared core and community facilities. These include a cafeteria and double-height library, health suite, gymnasium, and community/performance space. The academic and community sides of the complex are connected by a "main street" running the length of the building.

A landscaped plaza leads to the community entrance, enhancing the school's welcoming image to its urban neighbors. Play areas are located at one end of the block-long site, and parking and vehicular access occupy the other end.

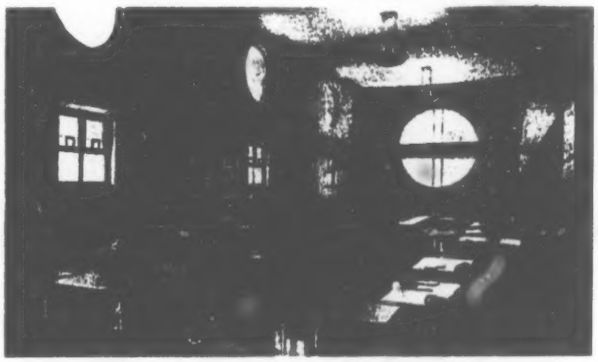


COMMUNITY ENTRANCE

CAFETERIA

Technology abounds in this middle school complex, where every classroom is equipped for networked computers, includes a telephone/voice mail system, and has a video monitor connected to the school's in-house video distribution system. The sophisticated technology system also enhances the building's security in this inner-city environment, employing closed-circuit television monitoring and magnetic-card door access. ■

COMMUNITY ENTRANCE LOBBY



LIBRARY

MIDDLE SCHOOLS
NEW CONSTRUCTION

ARCON Associates, Inc.

420 Eisenhower Lane, North
Lombard, IL 60148

Karen A. Plummer
(630) 495-1900

Design team

William R. Olson, AIA
Principal-in-Charge

Steven E. Hougsted, AIA
Project Architect

MEP Engineers
Mechanical Services

Client

Woodland Consolidated School
District 50
(847) 816-2530

Grade span
6-8

Current building capacity
2,000, with core facility for 3,000

Current building area
318,200 square feet

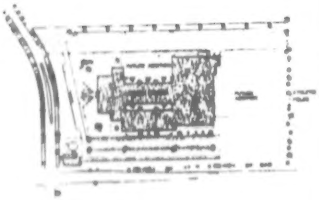
Total project costs
$28.2 million

Cost per square foot
$89

Space per student
127 square feet

Cost per student
$11,293

Completion date
August 1997



SITE PLAN

Woodland Middle School
Gurnee, Illinois

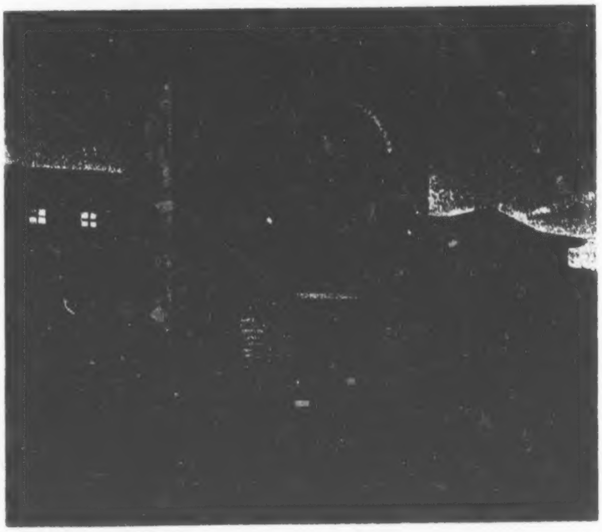
ARCON Associates, Inc.

When completed, the new Woodland Middle School will be one of the largest middle schools in the Midwest. It currently is designed for a capacity of 2,000 students, with infrastructure and core facilities for 3,000 students. A third wing is planned for the future.

To reduce its intimidating size, the school divided the sixth, seventh, and eighth grades into teams of 100 students each. These teams are made up of four, selfcontained, core classrooms including teachers for math, science, language arts, and social studies. Students will spend five of their eight periods per day in this sheltered environment, complete with their own corridor, lockers, toilets, teachers, and teammates.

This teaming, self-contained concept allows for block scheduling of 60 to 90 minutes to give teachers flexibility in content area or opportunities to integrate core courses. The teams are centrally located for easy access to support curriculum activities at either end of their academic wings.

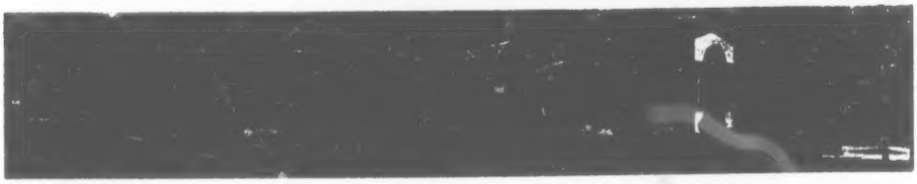
Each classroom is equipped with computers, Internet access, satellite reception, television monitors, multimedia retrieval, and a telephone. Two technology labs use state-of-the-art technology to provide instruction in hydroponics, laser, wind tunnels, animation, robotics, and fiber optics. ■



FRONT ENTRANCE PLAZA

MAIN LOBBY

TECHNOLOGY LABORATORY



MAIN ENTRANCE

HIGH SCHOOLS
NEW CONSTRUCTION

PJHM Architects Southwest

647 Camino De Los Mares, #201
San Clemente, CA 92673

David J. Hansen
(714) 496-6191

Design team

David J. Hansen
Principal-in-Charge

E. Jan Hansen
Project Architect

Charles Shreve
Project Manager

Robert Lenz
Construction Administrator

STB Structural Engineers Inc
Structural

Frederick Brown Associates
Electrical

F.T. Andrews
Mechanical

R. Dale Hadfield, ASLA
Landscape Architect

Client

Capistrano Unified School District
(714) 489-7000

Grade span
9-12

Current building capacity
2,200

Current building area
199,000 square feet

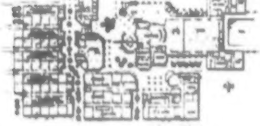
Total project costs
$24.6 million

Cost per square foot
$124

Space per student
90 square feet

Cost per student
$11,181

Completion date
1994



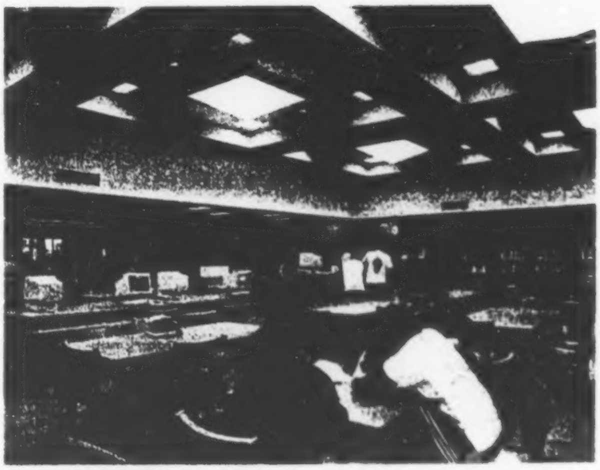
FLOOR PLAN

Aliso Niguel High School
Aliso Viejo, California

PJHM Architects Southwest

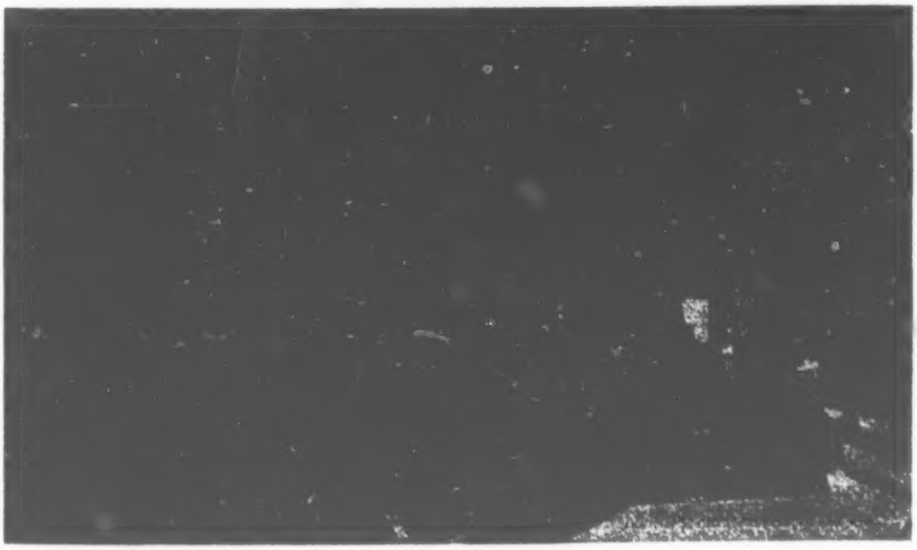
Aliso Niguel's layout is essentially campus like in nature. The buildings are closely clustered to provide an "urban village" texture within the varied and well-developed circulation and courtyard areas. This project is both encumbered by and the beneficiary of a severely elongated site that follows the Aliso Creek and its recreational greenbelt. The exterior aesthetics are enhanced by the extensive use of durable tile and brick finishes. Aliso Niguel's architecture supports many of the most innovative educational programs in the country.

The high school incorporates state-of-the-art technologies. Included are advanced media and data retrieval systems linked to each classroom, where specially designed teaching walls house large-screen TV monitors and controls as well as classroom computers. The project includes a unique "food court" food service area and innovative culinary arts teaching program, which significantly enhance the eating and learning experience. The project includes proven, advanced daylighting systems, which are integrated with many other energy conservation techniques and controls. ■



MIXED MEDIA CENTER

FOOD COURT/COMMONS



COURTYARD AMPHITHEATER

HIGH SCHOOLS
PROJECT IN PROGRESS

Shuller Ferris Johnson + Lindstrom Architects, P.A.

214 Burgess Street
Fayetteville, NC 28301

Robert W. Ferris
(910) 484-4989

Design team

Robert N. Shuller
Robert W. Ferris
Project Managers

Wynn L. Warner
Job Captain

Eric J. Lindstrom
Design Director

Nick Parrous
Nasim Kuenzel
Jeff Weber
Michael Huntanar
Andrea Pearson
Linn Johnson
Sean Vance
Project Team

Progressive Design Collaborative
PME Engineers

Fleming & Associates
Structural Engineers

The Rose Group
Civil Engineers

DeJong & Associates
Education Facilities Planner

Client

Cumberland County Schools
(910) 678-2305

Grade span
9-12

Current building capacity
1,750

Current building area
274,575 square feet

Total project costs
$24.5 million

Cost per square foot
$89

Space per student
157 square feet

Cost per student
$14,000

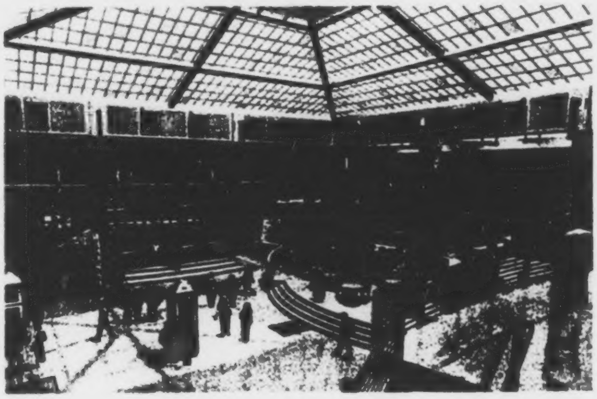
Completion date
Fall 1999

Jack Britt High School (formerly known as Southwest High School) Fayetteville, North Carolina

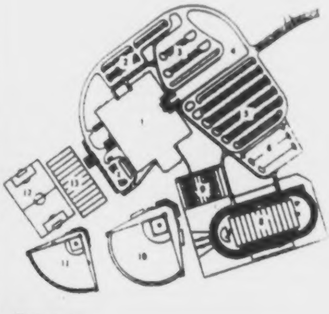
Shuller Ferris Johnson + Lindstrom Architects, P.A.

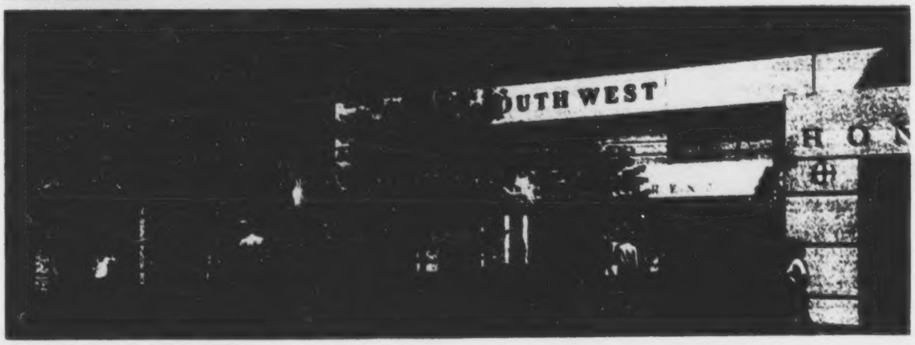
Through a series of community forums, the Cumberland County school system generated this prototype high school. A group of 68 community leaders, board members, administrators, teachers, and students participated in several consensus-building programming workshops to develop the educational specifications for the school. Out of this process came planning and building concepts that reflected the needs of all participating groups. Once the concepts were developed, the architects of Shuller Ferris Johnson + Lindstrom Architects worked with individual groups to design their spaces within the building. This process resulted in consensus among all groups and a strong, cohesive building concept.

Functional areas/academic houses are arranged around a central space. This two-story, naturally lighted atrium serves as the student commons, as well as the lobby of the auditorium, gymnasium, and cafeteria. In addition, all academic houses, administration, and guidance areas are accessible from this space. The idea was to develop a sense of equality in all school functions: academics, cultural arts, vocational education, physical education, administration, and guidance. ■


ATRIUM

ENTRY VESTIBULE


SITE PLAN



EXTERIOR VIEW OF FRONT ENTRANCE

HIGH SCHOOLS
NEW CONSTRUCTION

Huckabee & Associates, Inc.

4200 S. Hulen, Suite 330
Fort Worth, TX 76109

Christopher M. Huckabee, AIA
(800) 687-1229

Design team

Tommie J. Huckabee, AIA
Principal-in-Charge

Christopher M. Huckabee, AIA
Michael D. King, AIA
Project Architects

Charles F. Terry, PE
Structural Engineer

Thomas Romine Jr., PE
Mechanical Engineer

Jack Burgess, PE
Electrical Engineer

Client

Burleson Independent School District
(817) 447-5730

Grade span
9-12

Current building capacity
2,000

Current building area
378,000 square feet

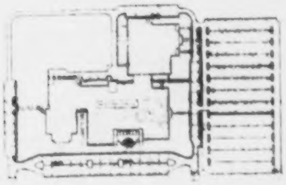
Total project costs
$24.2 million

Cost per square foot
$64

Space per student
189 square feet

Cost per student
$12,087

Completion date
July 1997



SITE PLAN

Burleson High School
Burleson, Texas

Huckabee & Associates, Inc.

The new Burleson High School was designed to accommodate approximately 2,000 students in grades nine through twelve. The building is situated on a 60-acre site with athletic fields for baseball, track, soccer, and football. The 378,000-square-foot building is arranged into three basic areas, with the fine arts and athletic event areas separated from the academic area. The academic portion of the building is two stories and centers on an entry court that provides a 1,200-seat dining area with eight food courts.

STUDENT ENTRY

VAULTED SKYLIGHT

STUDENT COMMONS AREA

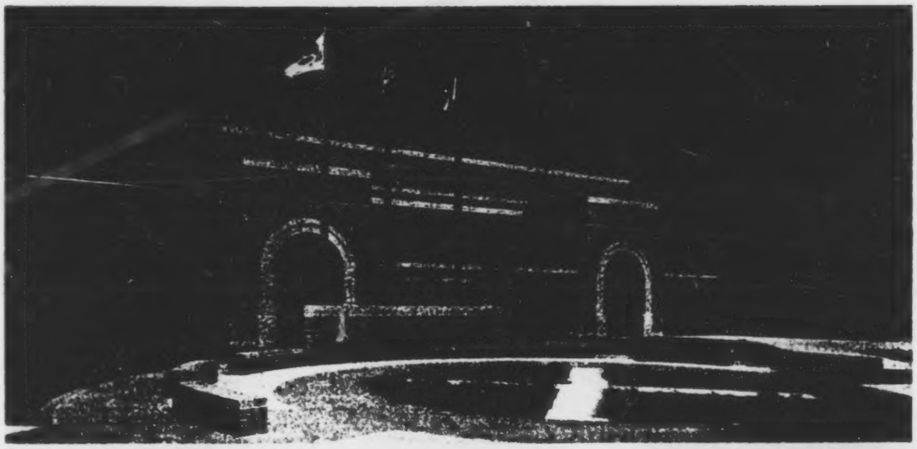
STUDENT COMMONS AREA

The fine arts area provides drama and debate labs, two art studios, band and music facilities, and a 1,000-seat auditorium. The industrial technology lab is also located in this area. The academic area has a state-of-the-art library and resource center located on the first floor, adjacent to the student court. Technology centers are located throughout the building, with classrooms incorporating voice/video/data retrieval. Other technology areas include computer labs and computer literacy labs.

The event area of the building has a 2,500-seat spectator gym and a 1,000-seat gym. This area also provides a large weight room and training area, an aerobic center, and dressing rooms.

The site access is arranged so that visitor and parent drop-off areas are separated from bus drop-off, student parking, and faculty parking.

The budget demanded that the building be constructed with a structural concrete foundation system and a basic



Exterior at main entrance

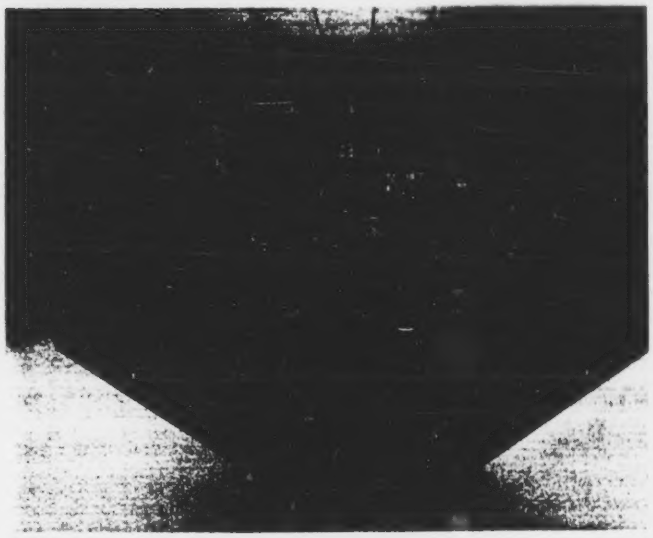
Gymnasium

Auditorium

system of steel joists, beams, and columns. The walls are constructed of concrete masonry for durability, with face brick to create a pleasing scale through pattern and texture. The interior has terrazzo and carpet floors, face brick and concrete masonry walls, and acoustical ceilings.

The surrounding environment affected the plan of the building and its placement on the site. The facility is bordered by a typical residential subdivision. The building was positioned to preserve and use the open site for outdoor physical education and athletic fields. ■

Exterior courtyard walk



Science lab

HIGH SCHOOLS
NEW CONSTRUCTION

Little & Associates Architects

5815 Westpark Drive
Charlotte, NC 28217

Gary L. Hubler, AIA
(704) 561-3413

Design team

Gary L. Hubler, AIA
President of the School Division

Thomas L. Balke, AIA
Project Manager

William B. Little, AIA
Chairman/Designer

Kim Reitterer, PE
Technology Consultant

Client

Charlotte-Mecklenburg Schools
(704) 379-7135

Grade span
9-12

Current building capacity
1,600

Current building area
232,000 square feet

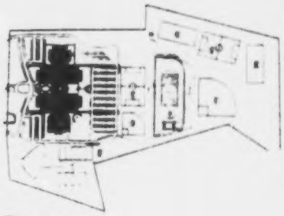
Total project costs
$20.5 million

Cost per square foot
$88

Space per student
145 square feet

Cost per student
$12,859

Completion date
Fall 1997



SITE PLAN

David W. Butler High School
Matthews, North Carolina

Little & Associates Architects

David W. Butler High School provides Charlotte-Mecklenburg Schools with a compact design that enhances the learning environment, improves security during after-hours events, and integrates the latest in school computing technology.

Designers developed an efficient, one-story floor plan that minimizes nonteaching space. Classrooms are clustered into academic wings where teachers from varied disciplines share planning space and integrate lessons between subject areas. Removing the classrooms from noisy central hallways creates a quiet academic alcove for teaching.

The design minimizes duplication of facilities and enhances security during after-hours events. By locating the gym and fine arts wings at opposite ends of the school, designers isolated public areas for after-hours use. During after-school events, the core of the school can be closed to unauthorized access while restrooms and concession stands are available to the public in the gymnasium and fine arts wings.

Sloped metal roofs provide high ceilings in common areas, such as the two gyms, media center, band room, and auditorium. High ceilings allow natural light to flood into three galleries, and clerestory lights in classrooms and computer rooms provide glare-free light. The school is equipped with the latest technology, including a fiber-optic backbone supporting the integrated communications system, one computer for every four students, and e-mail addresses for the entire staff. ■

STUDENT COMMONS AREA

AUDITORIUM

LAB

EXTERIOR

1998
CITATION AWARD WINNER
LEARNING BY DESIGN

HIGH SCHOOLS
NEW CONSTRUCTION

Thomas Blurock Architects, Inc.

720 W. 17th Street, Unit C
Costa Mesa, CA 92627

Kevin Fleming
(714) 646-9373

Design team

Thomas Blurock
Kevin Fleming
Principals

Craig Rothenburger
Project Architect

Robert Trucios
Jose Valentin
Draftspersons

Client

Long Beach Unified School District
(562) 595-9574

Grade span
9-10

Current building capacity
750

Current building area
40,000 square feet

Total project costs
$3.1 million

Cost per square foot
$78

Space per student
60 square feet

Cost per student
$4,133

Completion date
September 1996

Juan Rodriguez Cabrillo High School/Phase I Long Beach, California

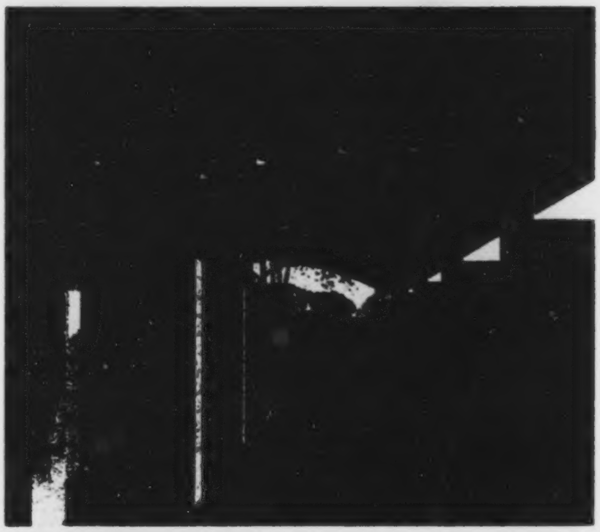
Thomas Blurock Architects, Inc.

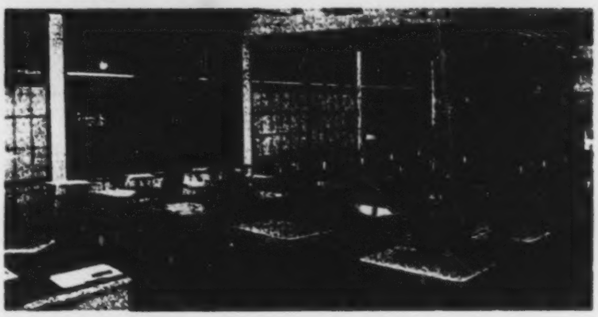
It has always been an aesthetic challenge in California to successfully incorporate the Office of Public School Construction's (OPSC) 30 percent relocatable classroom requirement into a new construction project. At this high school, due to an enrollment surge, the relocatable portion of the school was built ahead of the rest of the campus. This was used as an opportunity to architecturally elevate these normally mundane structures in terms of both aesthetics and flexibility.

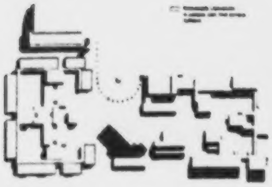
The configuration of the classrooms developed from the progressive programming philosophy of the Long Beach Unified School District and in response to the challenges of the California Department of Education. It was very clear from the beginning that a traditional, isolated, relocatable classroom space would not accommodate the integrated teaching methods that the educational community was striving for.

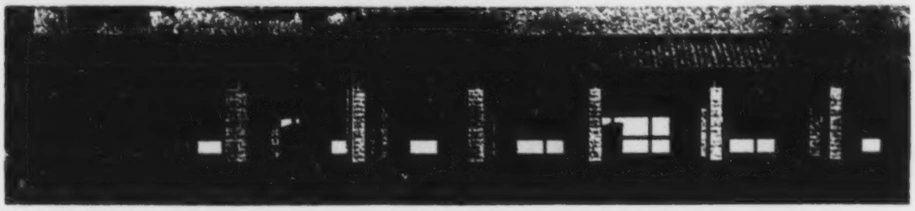
Our starting point was the OPSC's definition of a relocatable. Given these parameters, our solution was to maximize the potential of what a relocatable could be. The structural frame is a moment frame module, preapproved by the Division of the State Architect. A glass and translucent panel curtain wall system, as well as stucco infill panels, accentuate the structure and increase transparency between the classrooms. Designed with flexibility in mind, several of the buildings are temporarily being used to house other functions, such as administration, music, media center, art lab and technology labs, until the entire campus buildout is complete.

To unify the relocatable structures with the future completed campus, we incorporated a covered walk structure, built in the vocabulary of the future structures. ■


EXTERIOR DETAIL


COMPUTER LAB INTERIOR


SITE PLAN


EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

Hammel Green and Abrahamson, Inc.

1201 Harmon Place
Minneapolis, MN 55403

Bake Baker, AIA
(612) 337-4238

Design team

HGA Educational Design Group

Client

Independent School District 112
(612) 368-3601

Grade span
9-12

Current building capacity
1,500

Current building area
295,000 square feet

Total project costs
$26.7 million

Cost per square foot
$84

Space per student
196 square feet

Cost per student
$16,466

Completion date
August 1996

SITE PLAN

Chaska High School
Chaska, Minnesota

Hammel Green and Abrahamson, Inc.

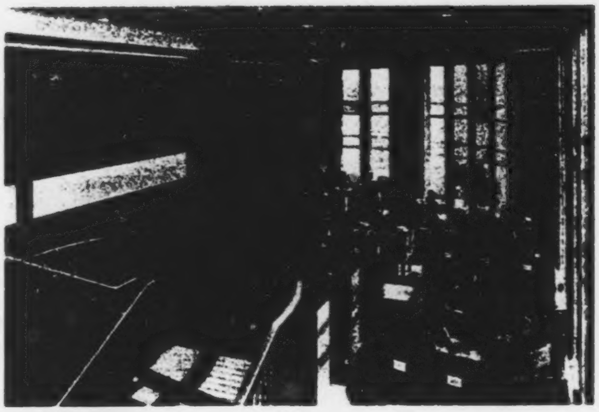
Chaska High School is designed to support the district's educational vision: to shift the learning process from a departmental model to an integrated, interdisciplinary environment.

The school is subdivided into three, 500-student houses, which creates the environmental quality of three smaller schools within the context of the larger school. The houses provide students and teachers an identifiable place to work together in familiar teams. Each house will provide all core curriculum classes. Flexible learning labs are integrated into each house to provide space for technical education, computers, family life science, and art. Some functions, including a media center, a physical education complex, an auditorium, a cafeteria, a music area and central administration, are not replicated in each house but are shared among the entire community of learners.

Each of the houses will be staffed by up to 30 teachers, with individual work stations in shared office spaces. Each house has "multiple learning settings": large lecture rooms, traditional classrooms, lab type spaces, and small-group learning spaces. Areas outside the classrooms are provided for computer work stations as well as individual and small-group learning.

The center of each house includes space for gathering and socializing, which helps enhance the identity of the community learners. The cafeteria, gymnasium, and auditorium form an activities hub that becomes the social center for the entire high school.

Community activities can be held after school and on weekends in the space that's been made available for community use. The HGA Educational Design Group met frequently with groups that use the high school. Inspired by their needs and ideas, the designers created a school that meets all budgetary, program, and community goals. ■



MEDIA CENTER

INTERIOR 'STREET'

EAST ENTRANCE

FORUM

HIGH SCHOOLS
NEW CONSTRUCTION

Wold Architects & Engineers

6 W. Fifth Street
St. Paul, MN 55102

Steve Deppa
(612) 227-7773

Design team

Kevin Sullivan
Principal-in-Charge

Jill Smith
Programmer

Michael Derng
Project Manager

Roger Schroepfer
Project Architect

Vaughn Dierks
Designer

Maria Blissenbach
Interior Designer

Kevin Marshall
Mechanical Engineer

Client

Rosemount/Apple Valley/Eagan
ISD 191
(612) 423-7700

Grade span
9-12

Current building capacity
2,000

Current building area
330,000 square feet

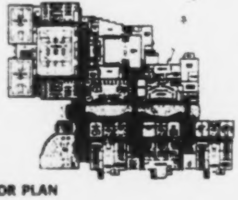
Total project costs
$28 million

Cost per square foot
$85

Space per student
165 square feet

Cost per student
$14,000

Completion date
August 1997



FLOOR PLAN

Eastview High School
Apple Valley, Minnesota

Wold Architects & Engineers

Guided by input from school officials, user groups, and a community committee through participatory planning meetings, the architects designed an educational facility for 2,000 high school students, which addressed three specific needs:

- full integration of the interdisciplinary "house" teaching philosophy presently in use in the district's elementary and middle schools;
- accommodation of future increases in the student population in this fast-growing school district; and,
- support for state-of-the-art technological resources to prepare students for the 21st century.

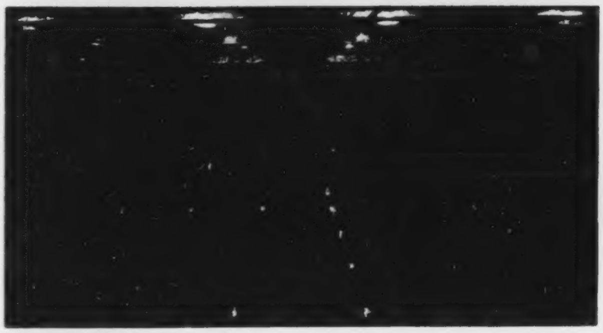
The 330,000-square-foot Eastview High School is the focal point of this sprawling, 120-acre educational and recreational campus. Open in the fall 1997, the school facility is just the beginning of the transformation of this former gravel pit into a resource for the entire community. The master plan calls for complete development of the site as part of the expansion of the existing Eastview Community Park in a joint effort with the City of Apple Valley and Independent School District #196.

The resulting design is a multilevel brick facility that encourages communication, integration, and teaming. The three-story academic wing is organized around eight student houses and the media center. The house concept provides students with a smaller core group of peers for enhanced social interaction and personalized instructional opportunities with lower student-teacher ratios.

The two-story student plaza serves as the link between the academic wing and the physical education, administration, and arts education areas. The flexible plaza functions as a dining and study area for students and as a meeting area for community events after school hours. The fine arts and athletics wings comprise the remainder of the facility.

Construction of the facility consists of a structural steel and concrete block frame with brick, steel, and stucco on the exterior, and brick, concrete block, gypsum board, and glazed concrete block on the interior. The entire building is served by an advanced technology infrastructure which includes integrated telecommunications, intercom, computer/data networking, television network distribution, and satellite systems. ■

STUDENT ENTRY



MAIN GYMNASIUM

STUDENT PLAZA

1998
CITATION
AWARD
WINNER
LEARNING BY DESIGN

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Grimm and Parker Architects

11785 Beltsville Drive, Suite 1400
Calverton, MD 20705

Stephen L. Parker, AIA
(301) 595-1000

Design team

Stephen L. Parker, AIA
Principal

John Hill
Melanie Hennigan
Associates

Lauren Goldberg
Karen Burlingame
Donald Porter
Stephanie Farrell
Crystal Willingham

Client

Montgomery County Public Schools
(301) 279-3133

Grade span
9-12

Current building capacity
1,600

Current building area
283,155 square feet

Building area before addition/renovation
244,000 square feet

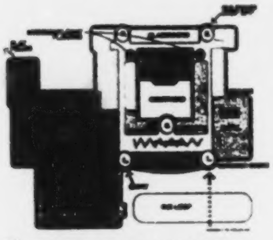
Total project costs
$20 million

Cost per square foot
$71

Space per student
177 square feet

Cost per student
$12,500

Completion date
September 1997



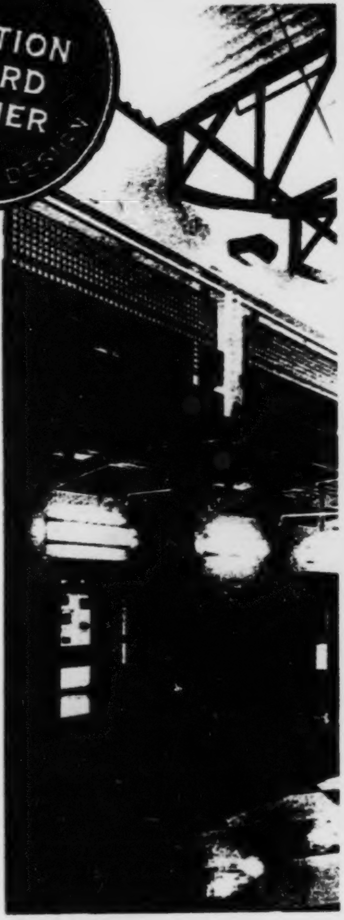
MAIN LEVEL CONCEPT DIAGRAM

Albert Einstein High School Kensington, Maryland

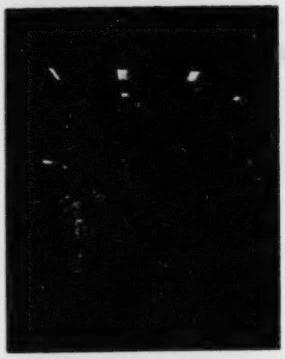
Grimm and Parker Architects

Montgomery County Public Schools wanted to modernize an existing high school, turning it into a state-of-the-art educational facility where technology and international studies were a major component of the program. In the existing building, circulation was not clearly organized, ceiling heights were low, and the building seemed dark and uninspiring. The renovation design organized the foot traffic around a new light, bright piazza space that connects the student building's entrance, administration, cafeteria, gymnasium, and theater spaces into a central student activity center. The student piazza is not necessarily just seen as a main street to walk through but also as a gathering space for student activities including

STUDENT PIAZZA

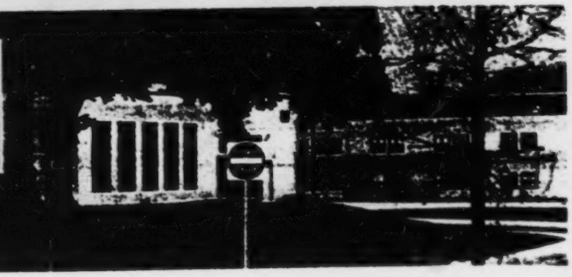


STUDENT PIAZZA

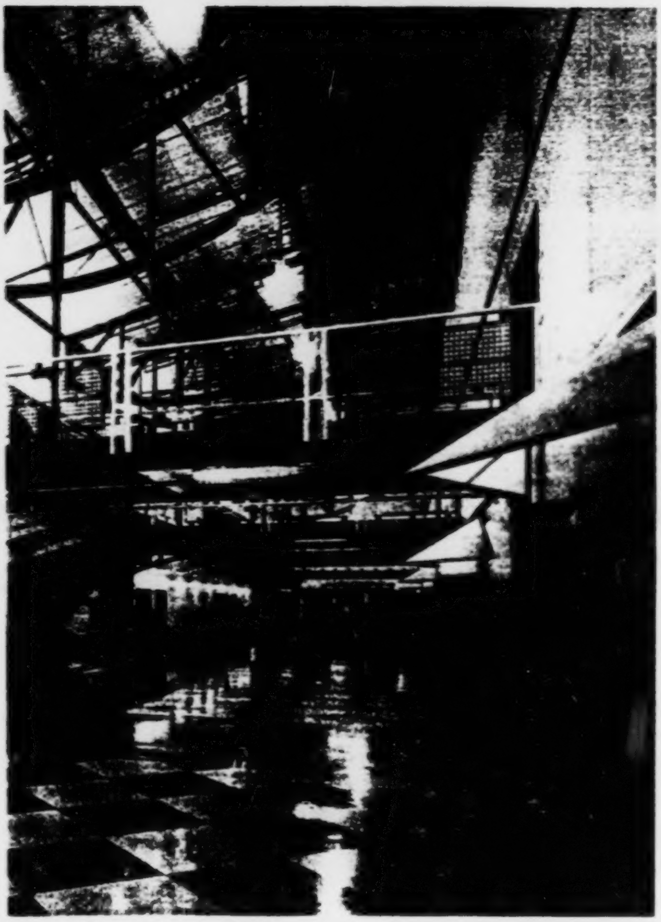


FOOD SERVICE PAVILION

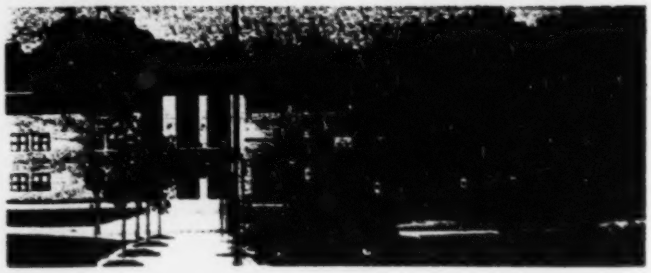
(INSET—EXTERIOR BEFORE RENOVATION)



EXTERIOR



Dining room

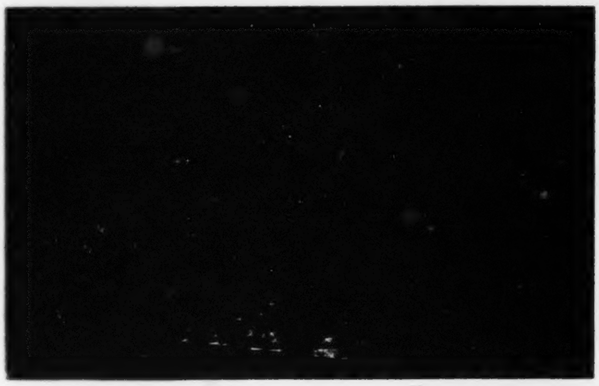


Media center

Auditorium

guidance, careers, casual eating, school store, bank, art gallery, student announcements, etc. The community will also use the piazza.

The existing site was oddly shaped. Its limitations included restricted site entry, poor visibility of the building from the street, and poor pedestrian and parking flow. The redesign included organizing a pedestrian path from the street to the main entrance and creating a tower form seen from the road to identify the school and the entrance from a distance. Parking lots and student drop-off areas were reorganized for clarity and safety. ■



Outdoor student dining patio

HIGH SCHOOLS
NEW CONSTRUCTION

Steed Hammond Paul Inc.

82 Williams Ave.
Hamilton, OH 45015

Todd Thackery, AIA
(513) 863-5441

Design team

Todd Thackery, AIA
Project Director

Connie McCarthy
Assistant Project Director

Barbara Miller
Interior Designer

Bob Riggs
Architectural Designer

Client

Fairfield City School District
(513) 829-6300

Grade span
10-12

Current building capacity
2,300

Current building area
315,000 square feet

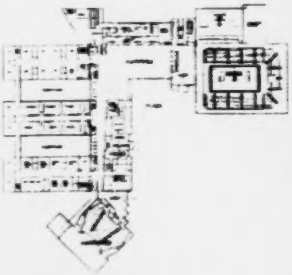
Total project costs
$29.7 million

Cost per square foot
$94

Space per student
137 square feet

Cost per student
$12,913

Completion date
August 1997



Main floor plan

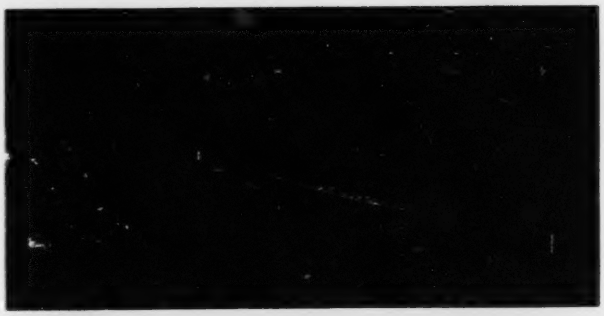
Fairfield High School
Fairfield, Ohio

Steed Hammond Paul Inc.

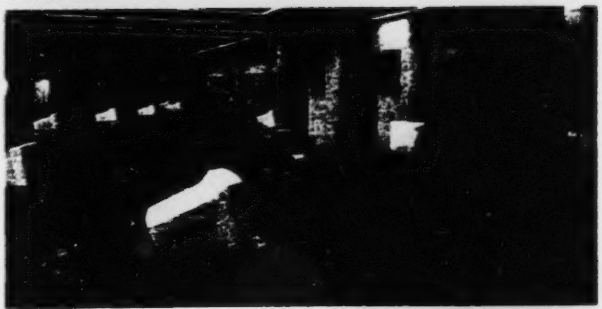
By responding to the values discovered through the Schoolhouse of Quality process, a process that involved listening to hundreds of the school's customers, the architects designed Fairfield High School to serve the needs of both the students and the surrounding community.

Visitors to the school are greeted by a unique welcome center, which provides both security for students as well as a reception area for guests. The large lobbies efficiently handle student flow during the day and provide after-hours access to the auditorium, gym, cafeteria, and 2,100-square-foot community room. The professional-quality auditorium with grand stage and orchestra pit is well suited for school and community uses, including regional theater productions. In addition to being able to seat the entire school body, the 3,000-seat arena can host regional athletic meets and other special events. All these areas can be used simultaneously, such as for the annual community arts fair, or individually for special events.

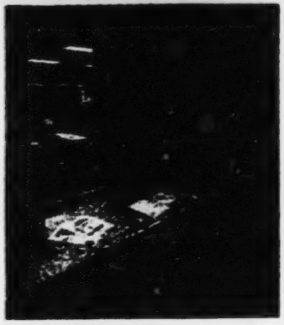
The educational wings are apart from the commons area and locker bays to reduce noise and distraction while giving students quick access to classes. Separated by outdoor courtyards, the wings provide natural light into all educational spaces. Shared teacher offices between the classrooms provide a concentrated place to work or hold private discussions. Small group spaces are available for tutoring, independent study, computer access, or collaborative group work, all under instructor supervision. All offices and educational spaces have access to technology through a full voice, video, and data infrastructure. ■



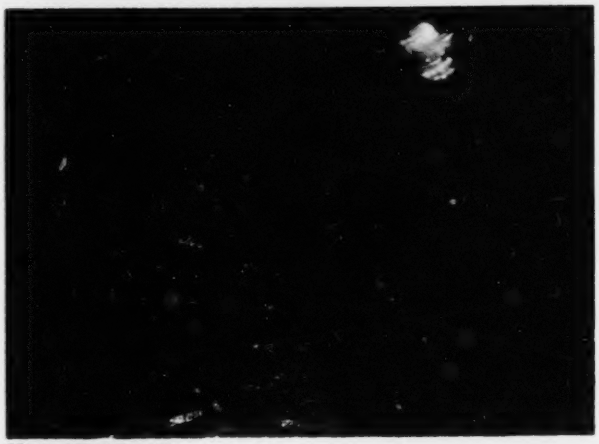
Auditorium



Media center



Shared teacher office



Main entrance plaza

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Hailey/Amirmoez/Associates/ Architects, P.A.

100 W. Center, Suite 302
Fayetteville, AR 72701

Zed Johnson, AIA
(501) 442-5565

Design team

Laleh Amirmoez, AIA
Principal-in-Charge

Zed Johnson, AIA
Project Architect/Designer

John Krug, AIA
Catherine Wallack

David Tatum
Structural Engineer

Gayle Gwinup, Flynt & Kallenberger
Mechanical Engineer

Cy Nowkah, Flynt & Kallenberger
Electrical Engineer

Client

Fayetteville Public Schools
(501) 973-8629

Grade span
10-12

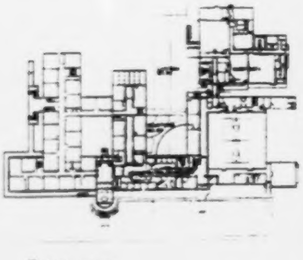
Current building capacity
1,700

Current building area
255,000 square feet

Building area before addition/renovation
248,000 square feet

Total project costs
$4.6 million

Completion date
February 1997



FLOOR PLAN

Fayetteville High School
Fayetteville, Arkansas

Hailey/Amirmoez/Associates/Architects, P.A.

Broad-based community support in 1994 led to major renovations of more than 150,000 square feet at the 50-year-old Fayetteville High School. Beyond the needed replacement of dilapidated mechanical and electrical systems, safety upgrades, and handicap-accessibility modifications, the challenge was to give students a modern facility that expressed the school's "Purple Pride."

Classrooms and corridors were refinished with bold floor tile patterns, colorful lockers, new ceilings, lights, and windows. Data networks linked all classrooms with the electronic world.

The front of the building received a complete facelift that featured a student gathering area and a new entry canopy with a skylight.

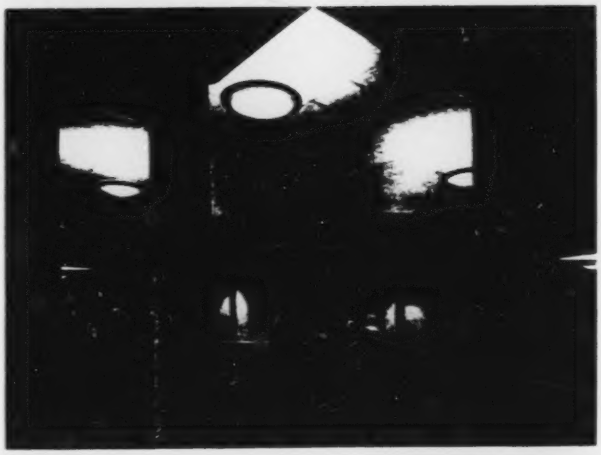
The administration and counseling areas were redesigned to be user- and visitor-friendly.

The library and adjacent courtyard were transformed through the use of daylight, added space, multimedia technology, and outdoor teaching areas.

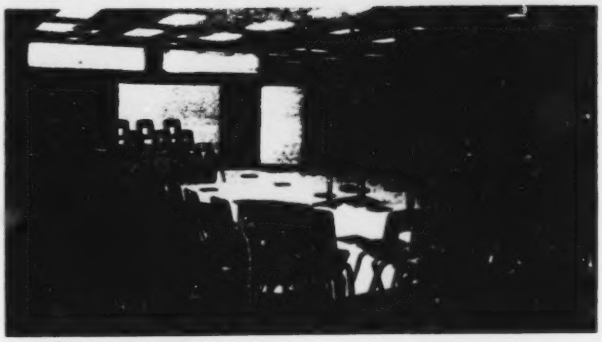
The cafeteria became a bright, colorful space with broad expanses of glass opening on to the courtyard and showing off views of the Ozark Mountains.

The band and choir areas were expanded by creating separate instrument storage, practice, and teacher prep rooms. Innovative "floating ceilings" improved the acoustics in the rehearsal room.

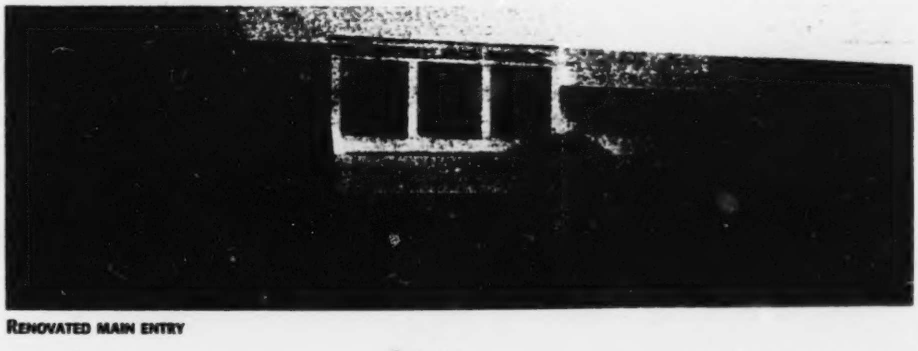
In May 1997, alumni from the past 50 years attended a spirited rededication ceremony and showed the teamwork that made the project a success. ■



LIBRARY



RENOVATED CHOIR ROOM



RENOVATED MAIN ENTRY

HIGH SCHOOLS
NEW CONSTRUCTION

Lesko Associates, Inc.

Gemini Tower II
2001 Crocker Road, Suite 200
Cleveland, OH 44145

Nicholas Lesko, FAIA
(216) 835-0850

Design team

Nicholas Lesko, FAIA
Administrator

Edward G. Lesko, AIA
Design

Richard E. Deming, AIA
Project Architect

David Andreano, AIA
Technology

Client

Green Local School District
(330) 896-7500

Grade span
9-12

Current building capacity
1,100

Current building area
189,000 square feet

Total project costs
$18.1 million

Cost per square foot
$96

Space per student
172 square feet

Cost per student
$16,483

Completion date
September 1996

FLOOR PLAN

Green High School
Green, Ohio

Lesko Associates, Inc.

1998
CITATION AWARD WINNER
LEARNING BY DESIGN

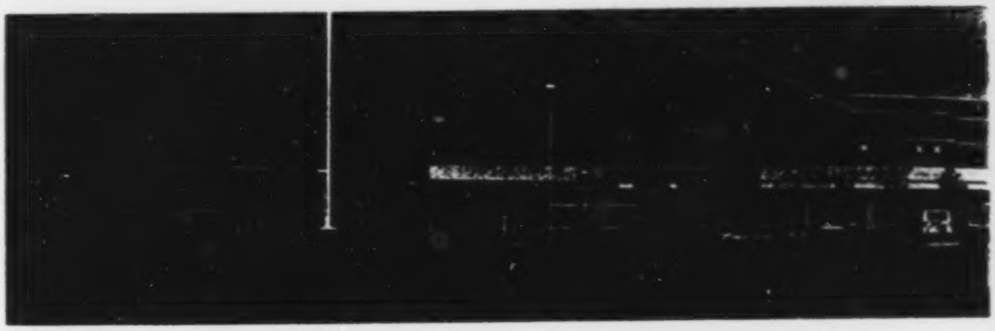
This project was designed in response to the district's goals of creating a high school with flexible and adaptable classroom and ancillary spaces; direct entry to the auditorium, gymnasium, cafeteria, and media center; expandability; and the latest technology.

The challenge of integrating the new high school into the existing campus complex was met by placing the school at the north end of the property, freeing a large middle area between the existing buildings.

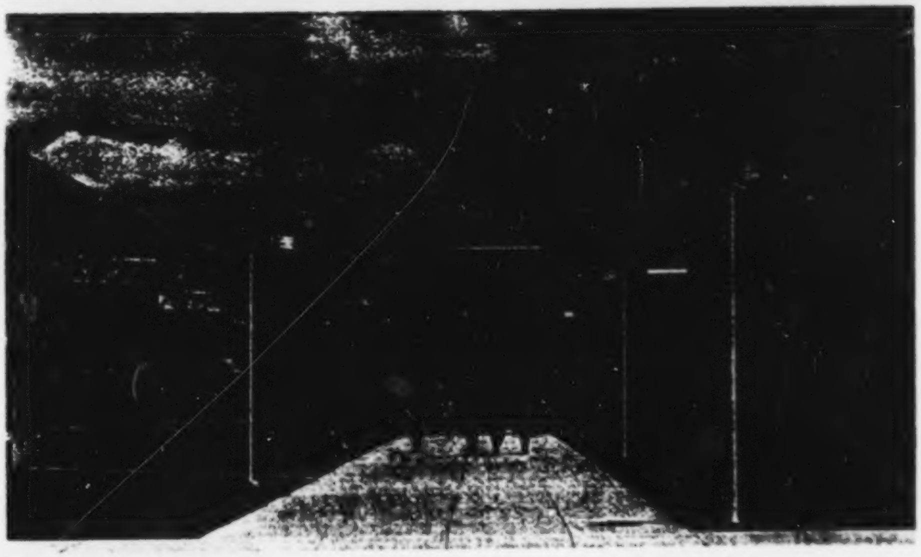
Designed for 1,000 students, with core facilities to accommodate 1,500, the school utilizes the latest technology with a building-wide local area network, four nodes in every classroom and additional nodes in computer labs and the media center. A control center serves the entire school system.

Various building elements are connected by an interior boulevard running the entire length of the building. Dra-

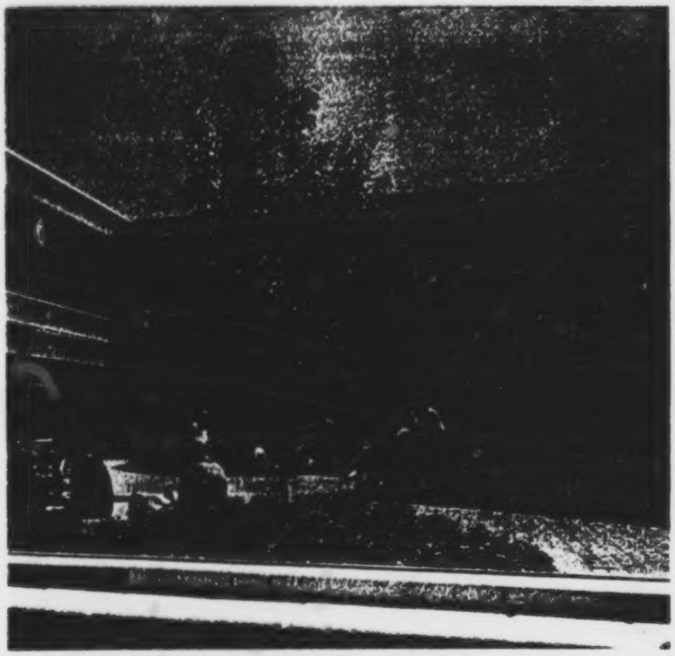
COURTYARD

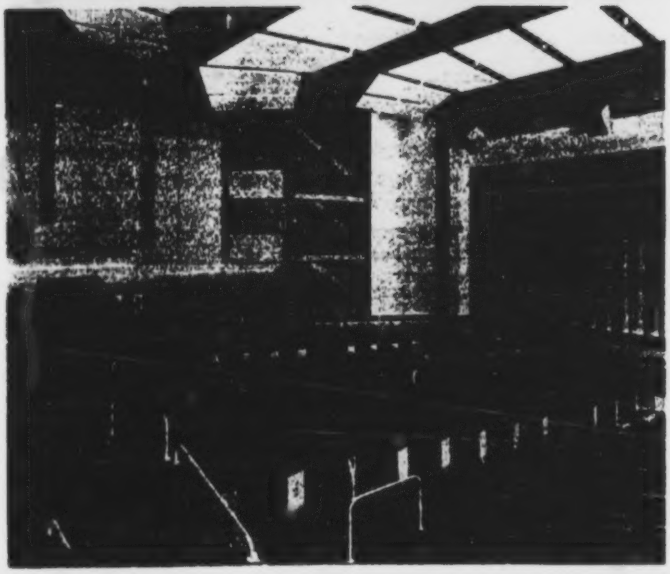


FRONT FACADE



GYMNASIUM AND CAFETERIA ENTRANCE





AUDITORIUM

CAFETERIA

GYMNASIUM

matic high clerestory windows flood the various areas with natural light.

A courtyard in the academic area provides access to the outdoors, enhancing the boulevard that connects the classroom pods, and providing an informal and much-used gathering space.

The heart and soul of the academic area is a large media/library center and group lecture room. Oriented strongly for community use, the media center, 750-seat auditorium, 450-capacity cafeteria/commons, and a gymnasium seating 1,600, have direct access from the school parking area.

Architecturally, the forms of the school are strongly articulated to add interest and movement to the main facade. These shapes are enhanced by strong horizontal masonry banding and interesting fenestration. ■

LIBRARY/MEDIA CENTER FACADE

HIGH SCHOOLS
NEW CONSTRUCTION

Voith & Mactavish Architects

1616 Walnut Street, 24th Floor
Philadelphia, PA 19103

Daniela Holt Voith, AIA
(215) 545-4544

Design team

Daniela Holt Voith, AIA
Cameron J. Mactavish, AIA
Principals

Evelyn Rousso
Project Architect

David Murray
Eric Spaeth
Design Team

D.J. Ververelli, Inc.
Mechanical Engineers

Keast & Hood Company
Structural Engineers

Client

Germantown Friends School
(215) 951-2300

Grade span
K-12

Current building capacity
200

Current building area
12,000 square feet

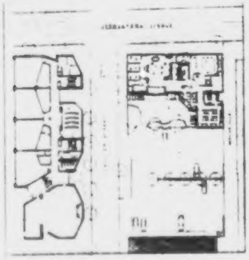
Total project costs
$2.2 million

Cost per square foot
$187

Space per student
60 square feet

Cost per student
$11,212

Completion date
September 1997



SITE PLAN

Germantown Friends School
Philadelphia, Pennsylvania

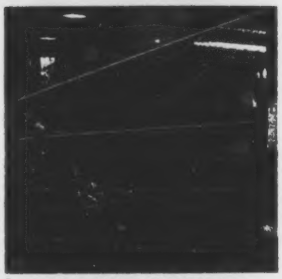
Voith & Mactavish Architects

The new Student and Technology Center at Germantown Friends School is one result of the master planning process begun in 1992. Programmatically, the new building provides vitally needed student lounge and meeting spaces, math and computer classrooms incorporating the latest technology, and a snack bar.

Because of subsurface conditions, three old foundations, and very high groundwater, the building is supported by caissons and has a structural slab on grade. The structure is steel frame with brick and stucco veneer. The roof is asphalt shingle with lower roofs and a pole gutter system of lead-coated copper; the canopy is corrugated fiberglass. In the spirit of Quaker simplicity, the structural slab, stained and waxed, was used as the finished floor.

The aim was to design a building that reinforced the campus aesthetics while creating an exciting and friendly interior that would make the students feel at home. The brick patterns and the layout of the window muntins modulate the scale of the building. Most of the major windows face the main campus. That, combined with the new building's relative distance from the school's other buildings, emphasizes the diagonal view of the campus. The steeply pitched gable roof recalls the roof of the meeting house, the architectural centerpiece of the school. ■

SNACK BAR AREA



LOOKING TOWARD LOUNGE FROM SNACK BAR AREA

ENTRANCE ELEVATION

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Cuningham Group
201 Main Street SE, Suite 325
Minneapolis, MN 55414
Tim Dufault
(612) 379-3400

Design team

John Quiter
Principal-in-Charge

Jerry Steffan
Project Manager

Steve Philippi
Architect/Primary Contact

Kathy Wallace
Mike Devetter
Architects

Client

Hopkins School District
(612) 988-4000

Grade span
10-12

Current building capacity
2,250

Current building area
400,000 square feet

Building area before addition/renovation
233,000 square feet

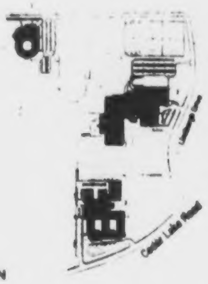
Total project costs
$20 million

Cost per square foot
$50

Space per student
178 square feet

Cost per student
$8,900

Completion date
November 1996



SITE PLAN

Hopkins High School Minnetonka, Minnesota

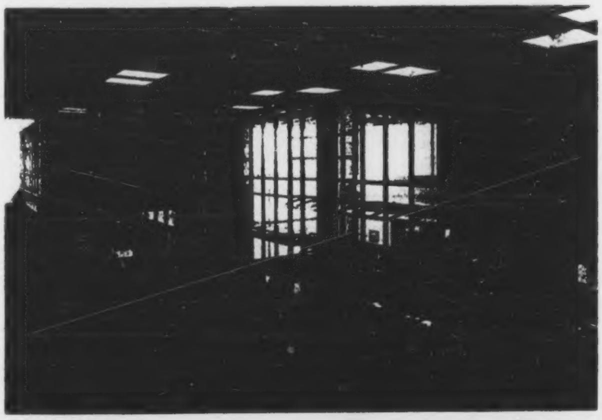
Cuningham Group

"Learning for All, Learning for Life" is the creed of Hopkins Schools. The architects were asked to renovate and expand the high school to bring new life to the district's philosophy and educational plan. Built in 1970, the school combined generous day-lit public spaces with windowless classrooms on cul-de-sac corridors supporting outdated departmental attitudes.

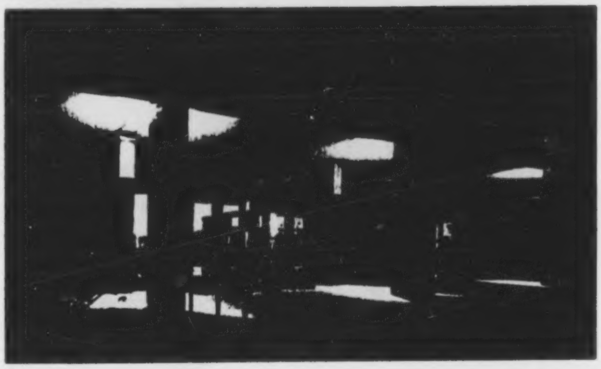
To form better relationships between these spaces, isolated departments have been redistributed within a flexible "broad fields" organization. Abundant new interior glass has created openness and connection between students and staff. Classroom clusters gathered around a core of resource spaces form the humanities broad field. A specialized classroom addition centers the math/science broad field. Traditional vocational spaces have been converted to computer-equipped laboratories that are the foundation of visual arts/business/applied technology.

Administrative offices and student services have been relocated behind new glass fronts on the school's public mall. Flanked by a remodeled media center and an expanded commons, these spaces establish a student-centered educational environment.

Finally, the district partnered with the city of Minnetonka to build the Lindbergh Center. More than a recreational facility, the building is a meeting place for the school community and the community at large. Open to residents throughout an active 18-hour day, the center is a model of efficient use of resources as it promotes healthful activity and social interaction. ■



PUBLIC MALL



ENTRANCE

EXTERIOR

GYMNASIUM

CITATION AWARD WINNER

HIGH SCHOOLS
NEW CONSTRUCTION

Burr Lawrence Rising + Bates Architects, P.S.

1145 Broadway Plaza, Suite 1200
Tacoma, WA 98402

Jerry Lawrence, FAIA
(253) 627-5599

Design team

Paul S. Rising, AIA
Principal-in-Charge

Kit Burns, AIA
Project Manager

Tony Matiatos
Project Architect

Hossein Peigahi
Project Designer

Chalker Putnam Collins & Scott
Structural Engineers

Tres West Engineers
Mechanical/Electrical Engineers

Sitts & Hill Engineers
Civil Engineers

Lynn Horn & Associates
Landscape Architect

Client

Kent School District No. 415
(253) 813-7218

Grade span
9-12

Current building capacity
1,600

Current building area
228,806 square feet

Total project costs
$35.6 million

Cost per square foot
$156

Space per student
143 square feet

Cost per student
$22,278

Completion date
September 1997

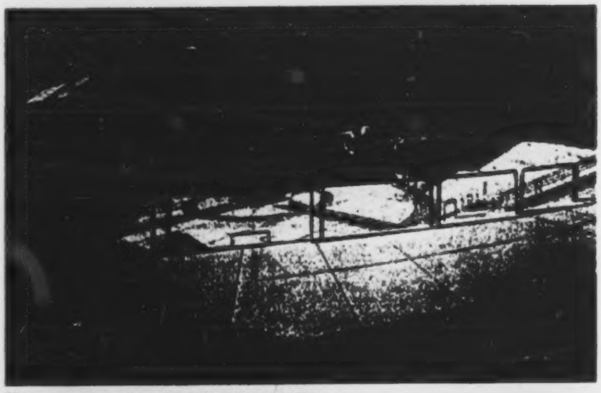
Kentlake High School
Kent, Washington

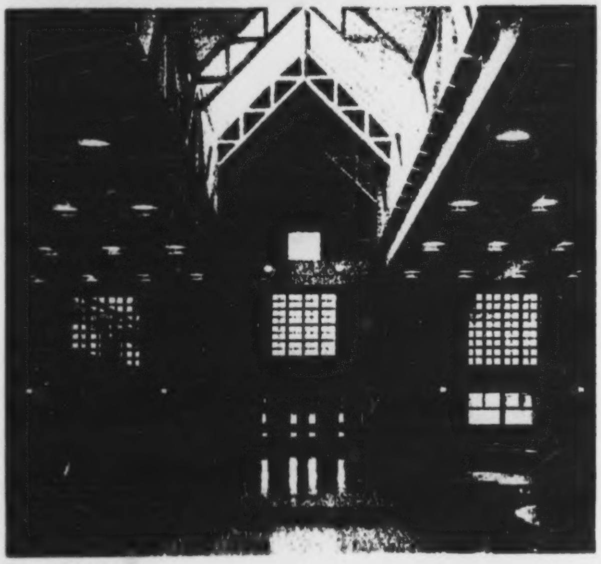
Burr Lawrence Rising + Bates Architects, P.S.

The new Kentlake Senior High School was designed to meet the needs that emerged during a comprehensive planning effort that focused on activities involved in the learning process, the most current knowledge about how we learn, and the community and cultural influences that affect the use of a high school facility.

The two-story, compact plan maximizes efficiency of a difficult site while minimizing interior corridor spaces. Classrooms are grouped in clusters to support interdisciplinary teaching and study. The core of the academic cluster contains a technology center, a project room, storage, teachers' offices, conference rooms, display areas, staff workrooms, and science labs. The clusters also break down the scale of the 1,600-student high school into more personalized and manageable school-within-a-school.

AUDITORIUM

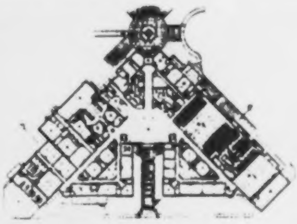

VIEW OF MAIN ENTRY FROM AMPHITHEATER


STUDENT COMMONS

The heart of the school is the commons, which serves as the social center, provides space for food service, acts as a circulation hub, and serves as a foyer during performances and athletic events.

A flexible auditorium can be divided into three teaching stations by use of revolving turntables. When open, the auditorium seats 600; when closed, each turntable provides lecture space for 125 students.

A spectrum of leading edge technology fills Kentlake. The facility is equipped with science labs, project and technology rooms, a learning resource center, a network of more than 400 computers, closed circuit televisions, and satellite hookups. With the flexibility to adapt to future technologies, this is a school designed for the 21st century; more importantly, this is a facility that supports and enhances quality education for our students today. ■


FLOOR PLAN

HIGH SCHOOLS
NEW CONSTRUCTION

Partners in Design Architects, Inc.

600 52nd Street, Suite 220
Kenosha, WI 53140

Werner H. Brisske, AIA
(414) 652-2800

Design team

Werner H. Brisske, AIA
Mark A. Molinaro Jr., AIA

Paul Reibman
Coordinator of Vocational Technical Education

David Hobson
Lead Teacher

Client

Kenosha Unified School District
(414) 653-6300

Gateway Technical College
(414) 656-6900

Kenosha Area Business Alliance
(414) 605-1100

Wispark Corporation
(414) 857-4661

Grade span
9-12

Current building capacity
440 Phases 1 & 2/220 Phase 1

Current building area
40,000 square feet, building
20,000 square feet, phase 1 build out

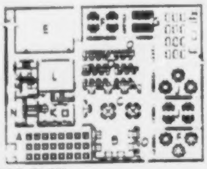
Total project costs
$1.1 million, building shell
$608,000, phase 1 build out

Cost per square foot
$28, building shell
$30, phase 1 build out

Space per student
91 square feet

Cost per student
$2,764 phase 1 build out

Completion date
August 1997



FLOOR PLAN

LakeView Technology Academy
Pleasant Prairie, Wisconsin

Partners in Design Architects, Inc.

Made possible through a collaborative effort between the Kenosha area schools, the local technical college, and the Kenosha business community, this school, the first of its kind in the state of Wisconsin, will provide students with a unique opportunity to graduate from high school with a strong emphasis in manufacturing and engineering technology. The same facility that educates these students by day will provide additional training and retraining for workers employed by many of the Kenosha-area manufacturing facilities and adults looking to gain the skills necessary to secure a job in manufacturing.

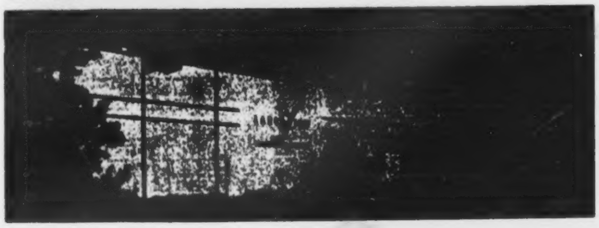
The academy provides a collaborative, multidisciplinary, combined career/college prep approach to high school education. Course work in math, communications, science, technology, and manufacturing processes is coordinated into a program that encourages and enables students to apply the facts and concepts that are being taught. Teamwork and communication are an integral part of all classes.

The main space of the school provides nine separate teaching areas in a nontraditional, open, office-like setting. Each year, 110 new ninth-graders will enter the program, and the facility will ultimately house 440 students, grades 9-12, in 40,000 square feet. ■

EXPLORATORY SCIENCE AND TECHNOLOGY LAB

PRODUCT DESIGN AND DEVELOPMENT LAB

COMMONS



FRONT ELEVATION

495

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Sverdrup Facilities, Inc.

400 S. Fourth Street
St. Louis, MO 63102

Jerry Clement
(314) 552-8733

Design team

Ed Schmidt, AIA
Principal-in-Charge

Gary Watson
Project Manager

HFMH
Design Consultant

Client

Lowell Public Schools
(508) 937-7614

Grade span
9-12

Current building capacity
4,000

Current building area
500,000 square feet

Building area before addition/renovation
400,000 square feet

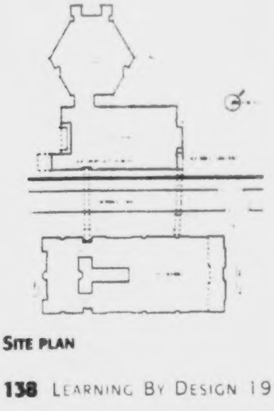
Total project costs
$40 million

Cost per square foot
$80

Space per student
125 square feet

Cost per student
$10,000

Completion date
August 1997



SITE PLAN

Lowell High School
Lowell, Massachusetts

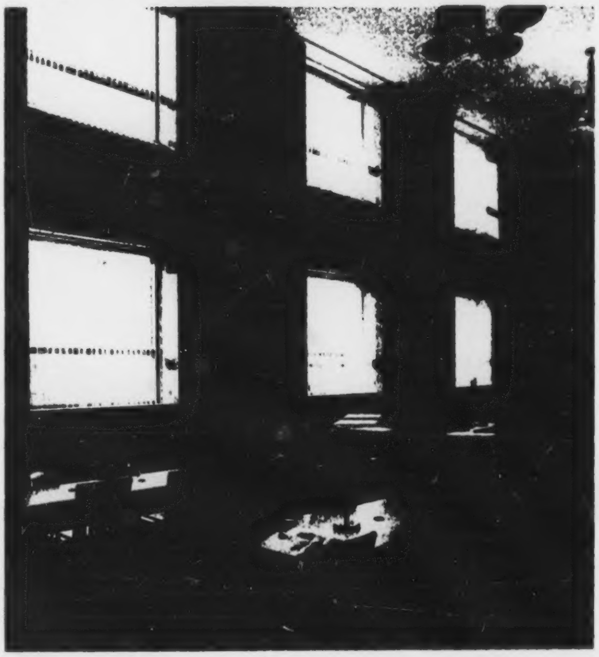
Sverdrup Facilities, Inc.

Sverdrup's renovation of Lowell High School provided state-of-the-art technology and programmatic renovation to the oldest coeducational facility in Massachusetts. The changes to Lowell, the city's only high school, expanded on the technology found at the district's K-8 level to create a consistency from kindergarten through twelfth grade. Built in 1894, the school's $40-million renovation involved two critical issues: an "impossible schedule" and, once funded, its completion while classes were in session.

Sverdrup quickly provided the district with the educational and programmatic specifications to be submitted to the Commonwealth of Massachusetts to qualify for funding. To meet the state's deadline, Sverdrup mobilized its team four days after being commissioned to perform a structural analysis and to research program development.

EXTERIOR

INTERIOR



LIBRARY

The program, 35 percent drawings plus specifications, detailed cost estimates, and a construction phasing plan, was delivered within two months. The state awarded Lowell funding for the entire project.

Sverdrup renovated Lowell's 400,000 square feet, added an additional 80,000, and completed construction in time for the first day of the 1997-98 school year.

The exterior renovation of the school's brick structures, the updated HVAC systems, and the restoration of the Lowell High School clock are among highlights of Sverdrup's work, which included architectural and engineering design, planning, programming, cost estimating, and scheduling. Lowell High School, comprised of Coburn and Sullivan halls, now accommodates 4,000 students and boasts new art rooms, classrooms, an auditorium, and a television studio equipped to broadcast to other district schools or the local cable station. ■

HIGH SCHOOLS
NEW CONSTRUCTION

Armstrong, Torseth, Skold and Rydeen, Inc.

4901 Olson Memorial Highway
Minneapolis, MN 55422

Tammy Magney, AIA, REFP
(612) 545-3731

Design team

Paul Erickson, AIA
Principal-in-Charge

Tammy Magney, AIA, REFP
Education Planning

Elena Peltsman, RA, CID
Dean Beeninga, RA
Design

Client

Osseo Area Schools District 279
(612) 391-7000

Grade span
10-12

Current building capacity
1,900

Current building area
326,000 square feet

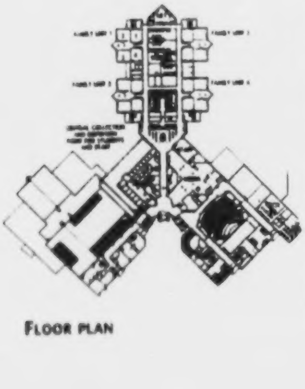
Total project costs
$32.7 million

Cost per square foot
$100

Space per student
134 square feet

Cost per student
$17,210

Completion date
August 1996



FLOOR PLAN

Maple Grove Senior High School
Maple Grove, Minnesota

Armstrong, Torseth, Skold and Rydeen, Inc.

This building's educational philosophy is closely aligned with its design. The identity of this building is drawn from its natural setting, and its environment reflects light, openness, friendliness, and accessibility for students, staff, and community. Therefore, in keeping with this concept, the educational philosophy for Maple Grove Senior High School reflects a natural, regional metaphor—the maple leaf.

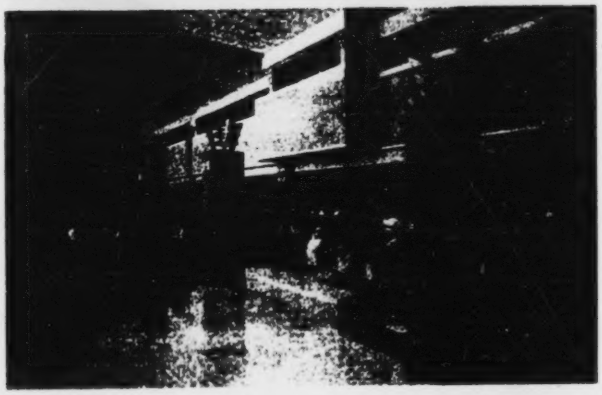
The simplicity of the maple leaf suggests an educational philosophy comprising three elements: the house concept, a performance-based philosophy, and the integration of knowledge and skills across subject areas. Each house has four "family units," which are supported by FTLA and computer labs to implement interdisciplinary team teaching.

STUDENT SERVICES

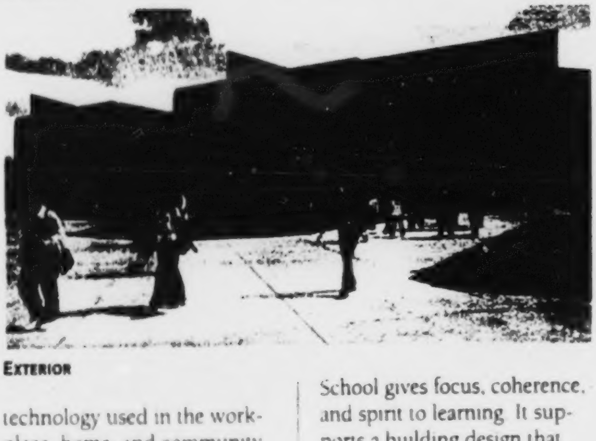
The use of technology supports this high school's educational philosophy and building design, just as the veins support and nourish the leaf. State-of-the-art voice, data, and video communications exist throughout the building. Students and staff are encouraged to use current and emerging technologies such as local area networking, multimedia work-stations, and direct broadcasting satellites. For students to be prepared for a complex and changing world, they need access to the technology used in the workplace, home, and community.

The educational philosophy of Maple Grove Senior High School gives focus, coherence, and spirit to learning. It supports a building design that reflects a valuing of students, staff, and community. ■

LOCKER COMMONS



CAFETERIA



EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

Armstrong, Torseth, Skold and Rydeen, Inc.

4901 Olson Memorial Highway
Minneapolis, MN 55422

Tammy Magney, AIA, REFP
(612) 545-3731

Design team

Ken Grabow, AIA
Principal-in-Charge

Tammy Magney, AIA, REFP
Education Planning/Design

Client

Indian Prairie Community Unit School District #204
(630) 428-6000

Grade span
9-12

Current building capacity
3,000

Current building area
438,700 square feet

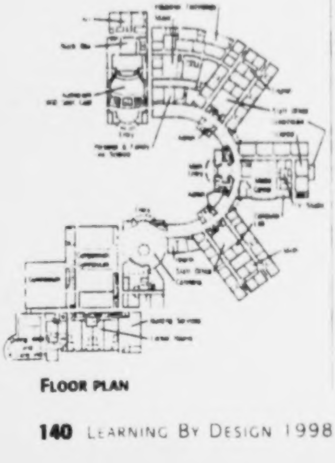
Total project costs
$44 million

Cost per square foot
$98

Space per student
146 square feet

Cost per student
$14,660

Completion date
August 1997



FLOOR PLAN

Neuqua Valley High School
Naperville, Illinois

Armstrong, Torseth, Skold and Rydeen, Inc.

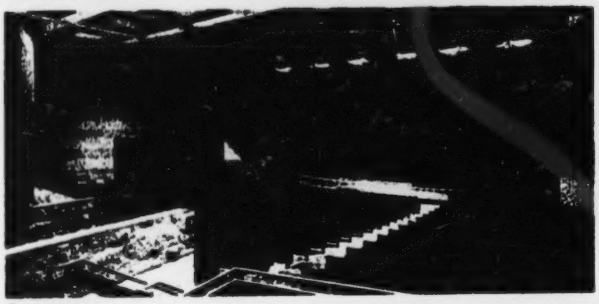
Tradition meets the 21st century in this high school:

■ Academic wings: Three academic wings house a central learning media center and science, math, special-needs education, and English classrooms on the first floor. The second floor houses centralized forum rooms, foreign language, social studies, driver education, science, and business education classrooms. As a whole, the three academic wings provide a total of nine computer labs, three of which are designed as tiered labs.

ENTRY TO ACADEMICS WING

LEARNING MEDIA CENTER

SCIENCE CLASSROOM



AUDITORIUM

■ Fine arts: The east portion of the school is anchored by a stunning auditorium with a 65-foot fly space for flexibility in theatrical productions and 18-foot sound towers for creating a fine acoustical environment for music performances. Clustered around the auditorium are the art rooms with gallery space, music rehearsal rooms, and classrooms for theater and journalism.

■ Athletics: The west portion of the school is home to the cafeteria, health education, and the physical education program, which includes a three-station gymnasium with bleacher seating for approximately 3,000, a two-station practice gymnasium, an eight-lane swimming pool with diving alcove and a three-lane training pool, spaces for wrestling and gymnastics, and state-of-the-art aerobics and weight training areas. ■

498

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

James Jordan Associates, Architects
81 W. Main Street
Richfield Springs, NY 13439
James M. Jordan, AIA
(315) 858-1820

Design team

James M. Jordan, AIA
Principal-in-Charge

Darryl J. White, AIA
Director of Design/
Project Management

David J. Haggerty
Steven M. Wickman

Client

Oneonta City School District
(607) 433-8200

Grade span
9-12

Total project costs
$4.4 million

Completion date
July 1997

Oneonta Junior/Senior High School
Oneonta, New York

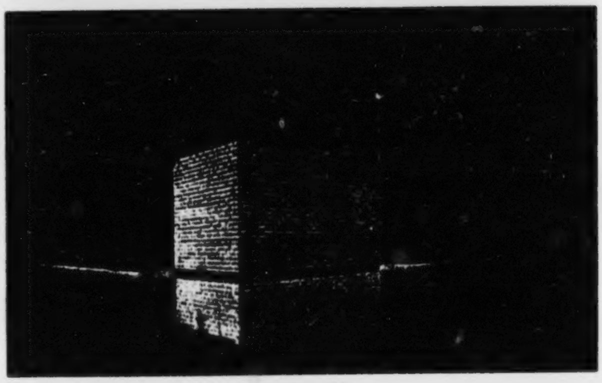
James Jordan Associates, Architects

Initiating a program to expand and enhance its secondary curriculum, the Oneonta City School District launched a multiple-phase building project at its Junior/Senior High School. As part of this endeavor, a wing dedicated to science education was added to the facility.

The science wing rooms are arrayed about a central commons, located at the intersection of two corridors. Combination classroom/laboratory areas are provided for each of five science specialties. Pairs of these classroom-labs each share an experiment preparation/office area and a science project center. Science project centers are designed for students to engage in individual, specialized, and advanced study. Viewing windows between the project centers and adjacent classrooms allow for visual contact and teacher supervision. The entire facility is wired for the latest in computer technology.

AMPHITHEATER

CLASSROOM-LAB

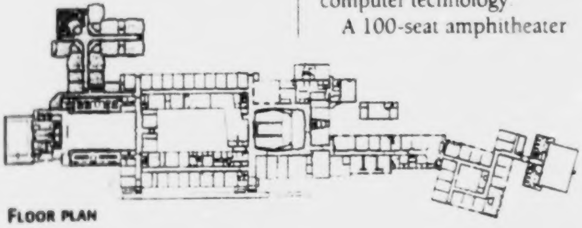

BOX BAY WINDOWS OPEN TO CLASSROOM-LABS

A 100-seat amphitheater features radially tiered lecture seating and a rear projection system for effective large-group multimedia presentations. The contoured plaster ceiling is designed to project the presenter's voice to all areas of the room. Acoustic wall and ceiling panels help minimize reverberation to enhance sound quality.

Skylighted corridors lead to the pyramidal roofed commons. Clerestory windows introduce additional natural light. Floors are terrazzo for long-term durability. In the commons, custom-designed "bay window" display units showcase science projects.

The building's exterior is enlivened with contour and multicolor patterned brick. Box bay windows with colorful frames illuminate the classroom-labs. A standing seam metal roof tops the commons.

The new science wing provides the district with a state-of-the-art facility, attracting faculty from a local university to serve as guest lecturers and teachers. ■


FLOOR PLAN

CITATION AWARD WINNER

Skyview High School Vancouver, Washington

LSW Architects, P.C.

HIGH SCHOOLS
NEW CONSTRUCTION

LSW Architects, P.C.

2300 Main Street
Vancouver, WA 98660

John D. Wyckoff, AIA
(360) 694-8571

Design team

Vaughn Lein
Programming/Principal-in-Charge

John D. Wyckoff, AIA
Designer/Programming

Ralph Willson
Programming

Chuck Farrell
Project Manager

Brian Elliott

Client

Vancouver Public Schools
(360) 696-7161

Grade span
9-12

Current building capacity
2,000

Current building area
292,000 square feet

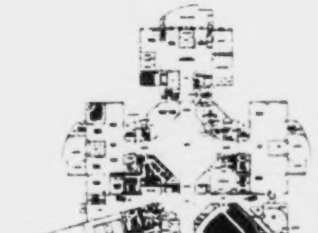
Total project costs
$29.8 million

Cost per square foot
$102

Space per student
146 square feet

Cost per student
$14,900

Completion date
September 1997



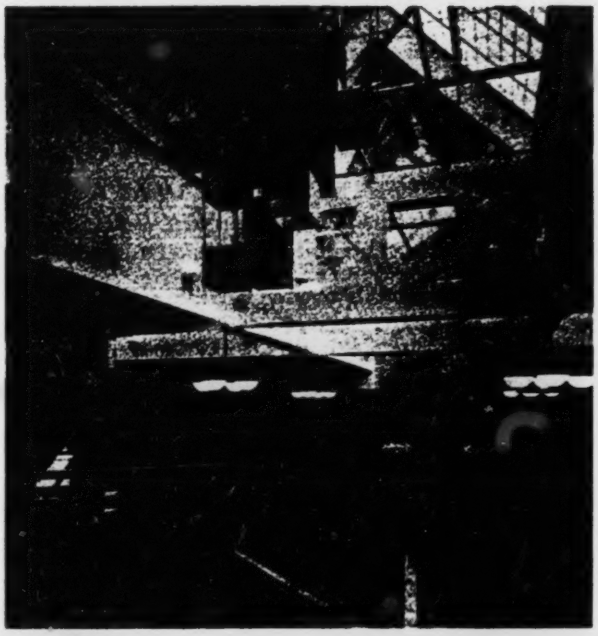
FLOOR PLAN

Cooperative planning for Skyview High School began in 1993 with a series of community workshops focusing on the future of secondary education in Vancouver, Wash. Students, parents, educators, architects, business partners, city planners, and other citizens were involved in these early "imagineering" sessions. In the final project evaluation, construction documents showed remarkable fidelity to the vision of the symposium participants.

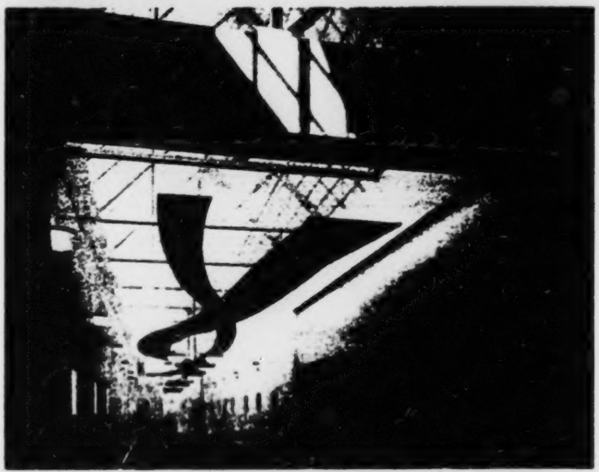
Skyview accommodates 2,000 students in grades nine through twelve. The school is located adjacent to elementary and middle schools in a 90-acre community educational park. The brick veneer, steel-frame structure complements the existing campus facilities while relating to the local neighborhood.

The school's physical layout is based on three concentric circles. The outer circle is composed of six academic houses (three per floor), which serve as small communities. The middle circle consists of student enterprise zones providing opportunities for hands-on learning. The inner circle, or commons, is a large gathering place.

The academic houses contain flexible spaces with movable walls to allow individual study, collaborative projects,

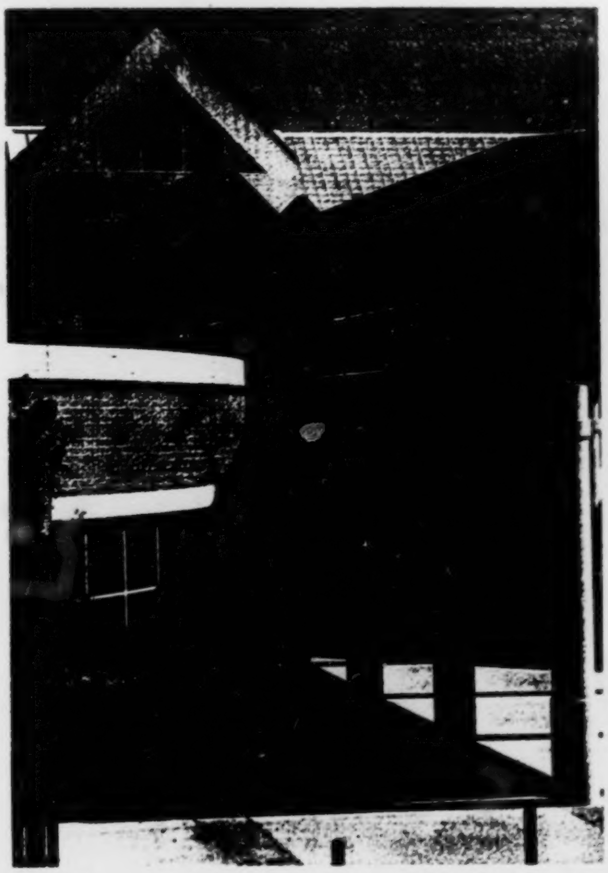


COMMONS

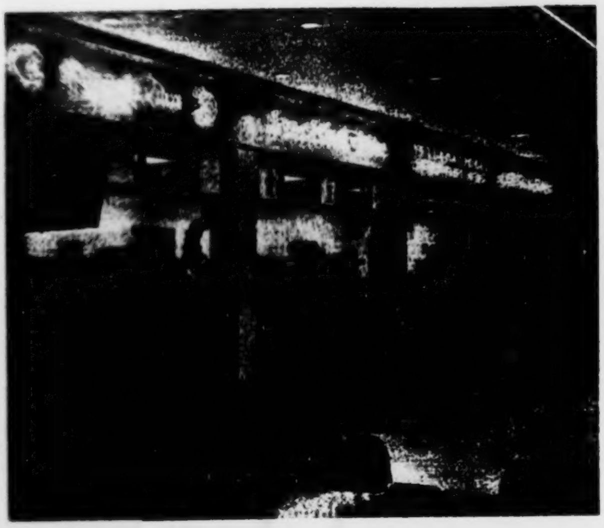


ATRIUM

EXTERIOR



ENTRANCE



FOOD COURT

and large-group instruction. They also include areas for staff planning, conferences, decentralized administration, student services, and counseling. Forums with theater-style seating are available for presentations and distance learning via satellite. One wing is designated as a magnet school for concentrated study in science, mathematics, and technology.

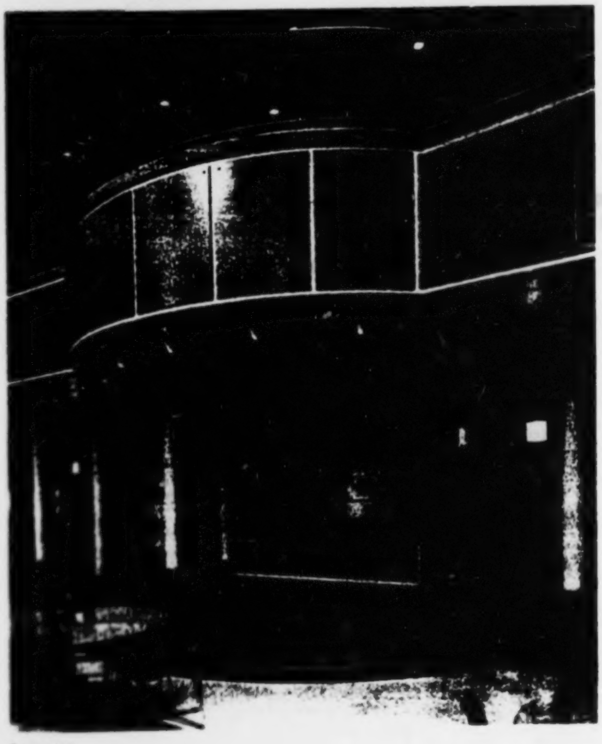
Adjoining the houses is a circle of learning labs that enable students to apply their academic studies. The ground level contains a student-operated marketplace, bank, electronic arts studio, and food court. Student work and business partnership exhibits are displayed in a large gallery. A news bureau, information center, print production, student government, career center, and learning support are located upstairs.

The 10,000-square-foot commons supports the ongoing educational and social activities of students, staff, and community patrons. Naturally lighted with a two-story ceiling, the commons features flexible furnishings for seating, a small stage with a large rear projection screen for presentations, and a sunken lounge area.

The physical education and athletics facility is focused on promoting lifelong fitness and health. The main level includes an office and health room, a nutrition lab, and areas for free weights and circuit training. Team meeting rooms, lockers, equipment storage, restrooms and showers, a lobby for community access, concessions service, and a variety of sports and fitness activity spaces are located downstairs. Two gymnasiums contain bleacher seating for 3,300 people.

The auditorium seats 1,150 people and is designed especially for musical performances, visiting speakers, and other community events. Adjacent to the auditorium are rehearsal areas for instrumental and choral music, individual practice rooms, and instrument storage space.

Skyview contains an advanced electronic infrastructure with 1,700 distributed network connections and 500 computer work stations. The school's fiber-optic backbone is connected to a wide area network and an internal Category 5 10BaseT wire hub system, enabling transmission of voice, video, and data. ■



INTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.

4101 McEwen, Suite 300
Dallas, TX 75244

R.C. Garcia
(703) 648-1740

Design team

R.C. Garcia
Principal-in-Charge

John Irish
Project Manager

Jim Estes and Bo Newlin,
Estes, McClure & Associates
MEP Engineers

Joe Craddock
Structural Engineer

Tom Dougher
Civil Engineer

Gary Lamb
Designer

Client

Loudoun County Public Schools
(703) 771-6400

Grade span
9-12

Current building capacity
1,350

Current building area
228,000 square feet

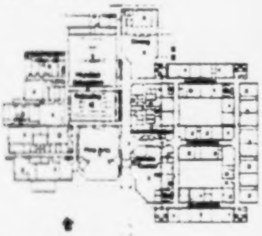
Total project costs
$23.4 million

Cost per square foot
$102

Space per student
169 square feet

Cost per student
$17,304

Completion date
March 1997



FLOOR PLAN

Potomac Falls High School
Sterling, Virginia

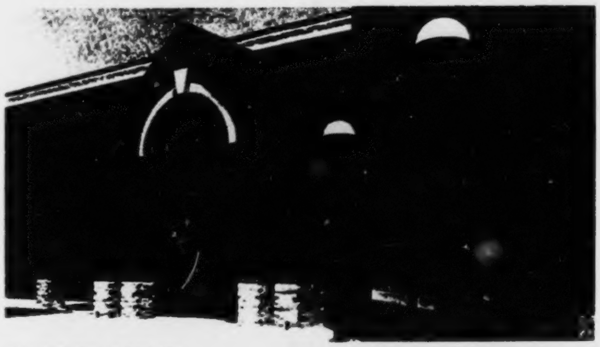
SHW Group, Inc.

Potomac Falls High School presently is designed for a 62-acre site in the Cascades subdivision. The school plant will accommodate 1,350 students in a closed concept, departmentalized facility. The total building area is approximately 228,000 square feet.

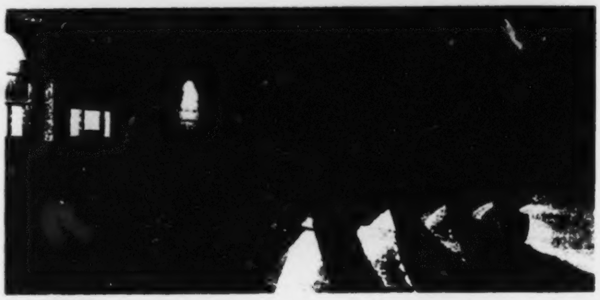
The high school is a steel-framed structure. Exterior walls are brick with cast stone at designated areas. Exterior fenestration will complement arched glass areas (stairways, clerestories, etc.) and traditional use of columns at the entry. The use of different materials from one area to another is planned and detailed for a smooth, pleasing transition.

The high school is designed for Loudoun County Public Schools as well as community use. The entire building maintains a high degree of flexibility and possesses economy in construction and maintenance. The plan is functional in terms of the purposes it is to service and also exhibits quality, beauty, and efficiency.

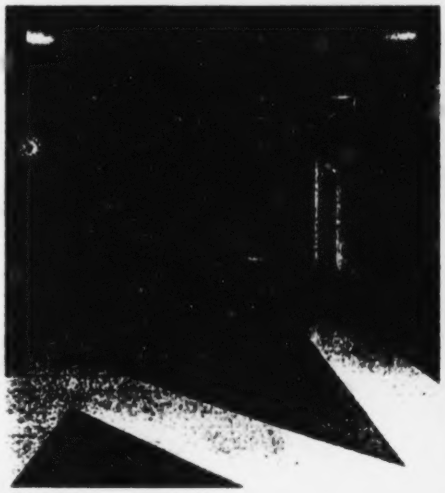
In addition to the enclosed building area, the plant is planned for paved parking for students, staff members, and visitors. A lighted football stadium, track, a competition baseball field, a soccer field, practice fields, and six tennis courts are planned for this facility. ■



FRONT ENTRY CLOSE-UP



AUDITORIUM



COMMONS

MEDIA CENTER

HIGH SCHOOLS
NEW CONSTRUCTION

DLR • Lescher and Mahoney

525 N. Cascade, Suite 200
Colorado Springs, CO 80903-1416

John Quest, AIA
(719) 634-0205

Design team

John Quest, AIA
Principal-in-Charge

George Rice, AIA
Associate Principal

Ned Luthy, RA
Project Architect

Mike Wills, AIA
Project Designer

Tim Christensen
Construction Administration

Client

Summit School District
(970) 668-3011

Grade span
9-12

Current building capacity
1,000

Current building area
191,000 square feet

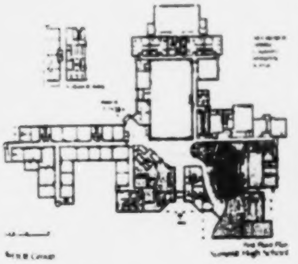
Total project costs
$28.3 million

Cost per square foot
$148

Space per student
191 square feet

Cost per student
$28,300

Completion date
February 1997



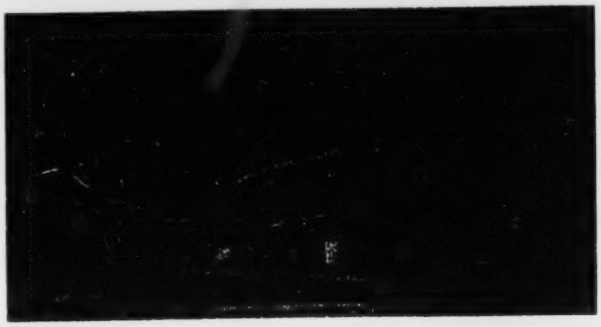
FLOOR PLAN

Summit High School
Frisco, Colorado

DLR • Lescher and Mahoney

Summit High School fulfills multiple purposes, accommodates multiple users, and complements its setting in the Rocky Mountains.

Designed to provide flexibility for student scheduling and to encourage interdisciplinary teaching, Summit contains academic, fine arts, and physical education sections. The academic section accommodates a "house" concept, providing educational pods for interdisciplinary teaching. The auditorium and physical education facilities are accessed by a common space that minimizes duplication and effectively handles crowds.

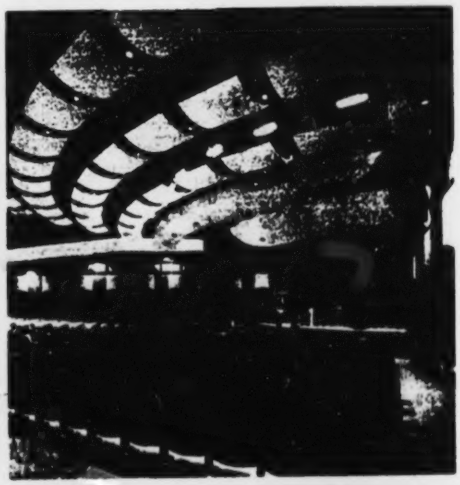


EXTERIOR

Altitude-appropriate design methods and building materials were used to confront the extreme mountain climate. Summit's Victorian-influenced design blends with the local architecture and helps the school play a central role in the community.

Construction of the building was "fast tracked" because of the urgent need for educational space. Fast tracking was accomplished by designing the building in separate "packages," beginning construction on the earthwork package while design continued on the building's other elements. ■

CAFETERIA



AUDITORIUM

EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

Boney Architects, Inc.

2115 Rexford Road, Suite 316
Charlotte, NC 28211-3476

Charles H. Boney Jr., AIA
(704) 366-5132

Design team

Charles H. Boney Jr., AIA
Principal Architect

Roger L. Leeson, AIA
Project Architect/Design

Franklin "Barry" Swanson, AIA
CADD/Design

Kevin B. Utsey, AIA
Design

Patricia Fisher, Associate AIA
Staff Architect

Leigh Stewart, AIA
Interior Design

Ronn Shank, CCS
Specifications

Stephen Olin
Benjamin Simpson
Construction Administration

Leslie N. Boney Jr., FAIA
Senior Principal

Client

Charlotte-Mecklenburg Schools
(704) 379-7000

Grade span
9-12

Current building capacity
1,600

Current building area
230,000 square feet

Total project costs
$21.4 million

Cost per square foot
$93

Space per student
144 square feet

Cost per student
$13,359

Completion date
Autumn 1997

Zebulon B. Vance High School
Charlotte, North Carolina

Boney Architects, Inc.

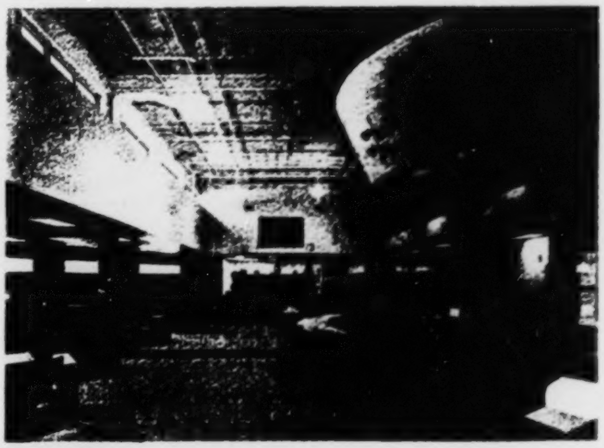
Zebulon B. Vance High School was conceived as the centerpiece of a four-school campus within a rapidly developing area of Charlotte. The campus, known as the Governors' Village, will eventually house 5,200 students and will permit students to attend a single campus throughout their academic career.

The high school is a small village. Separated into several academic houses, the mass of the 230,000-square-foot facility is disguised to create a small-scale learning environment for students and teachers. Central to the scheme is a large open piazza, which accommodates informal student gatherings and connects the various buildings. Covered and enclosed walkways provide a variety of connections from building to building.

The media center adjoins the central piazza and is convenient to all academic programs.

Dining for students is accomplished in the food court; a variety of entrees are served from the six serving areas.

Faculty offices are grouped in three areas and provide a professional atmosphere for teachers. The offices also permit multiple use of individual classrooms without issues of "ownership" arising.

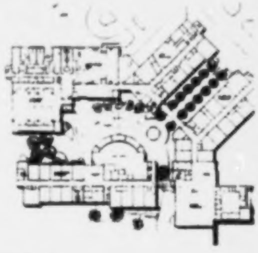


MEDIA CENTER

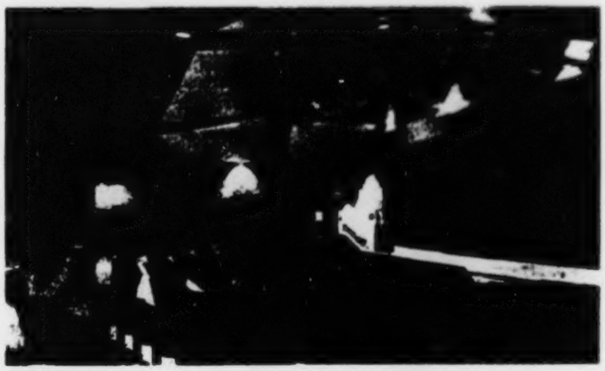
EXTERIOR

The village was one of 10 sites to receive a grant from IBM that focused on the notion of "Reinventing Education" through parent-school connectivity via technology. Parents, teachers, and students are able to access assignments, monitor progress, and explore resources of the facility in the same manner that businesses exchange information.

The design is the result of intense interactive sessions between the architects and 75 teachers, business people, and administrators. This type of interaction continues to be encouraged by the architecture and the educational program. ■



SITE PLAN



AUDITORIUM

HIGH SCHOOLS
PROJECT IN PROGRESS

Beery, Rio & Associates

4215 Evergreen Lane
Annandale, VA 22003

William T. Brown II, AIA
(703) 256-9700

Design team

William T. Brown II, AIA
Partner-in-Charge

Leslie Sluger, Associate AIA
Project Manager

Molly Merlo, Associate AIA
Job Captain

Anne Richards, IIDA
Associate

Rick Rutledge, AIA
Bob Jasper, AIA
Architects

Viktor Stipsic
3D Presentation

Strickler Associates, P.C.
Mechanical/Electrical Engineers

Ehlert/Bryan, Inc.
Structural Engineers

Client

Fairfax County Public Schools
(703) 246-3643

Grade span
9-12

Current building capacity
2,600

Current building area
373,000 square feet

Total project costs
$39 million

Cost per square foot
$105

Space per student
143 square feet

Cost per student
$15,000

Completion date
September 2000

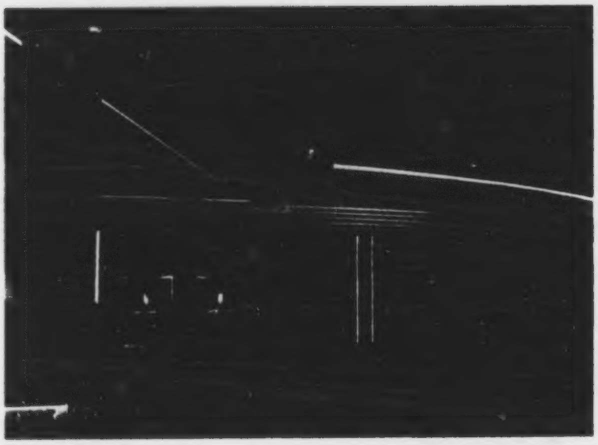
West County High School
Fairfax County, Virginia

Beery, Rio & Associates

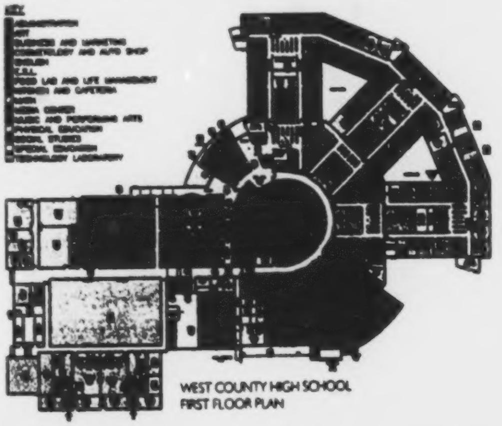
The plan for the new high school has been developed to provide a safe and creative environment for both students and faculty and to encourage use by the community. The West County High School is 375,000 square feet in size, including a two-story media center, state-of-the-art classrooms, and a gymnasium. The site will include a football/soccer stadium, baseball and softball fields, tennis courts, and several practice fields.

The plan concept includes three radial academic wings originating from a two-story media center and connected by concentric corridors. Each wing is occupied by a department, and each department has its own technology lab. This format organizes academic departments on each floor. English, social studies, math, and special services are on the first floor, with lab-type spaces on the second floor for science, technology, art, cosmetology, work and family studies, and business.

The main administrative suite is located at the student entrance and provides visual monitoring of the front of the school and the bus loop. Guidance offices are located across the student lobby. The east-west axis has a major corridor that connects the academic and athletic/elective wings. Support facilities and custodial rooms are located at the south end of the building. ■



FRONT ENTRANCE



FLOOR PLAN

EXTERIOR

K-12

NEW CONSTRUCTION

Schenkel & Shultz

200 E. Robinson Street, Suite 300
Orlando, FL 32801

J. Thomas Chandler, AIA
(407) 872-3322

Design team

J. Thomas Chandler, AIA
Principal-in-Charge

Daniel Tarczynski, AIA
Principal of Design

Joe Toth, AIA
Project Manager

Rita Watson, AIA
Project Architect

William Rawn Associates
Design Architect

Allen Joslin, AIA
Principal of Design

Client

Osceola County Public Schools
(407) 870-4636

Grade span
K-12

Current building capacity
1,408

Current building area
150,000 square feet

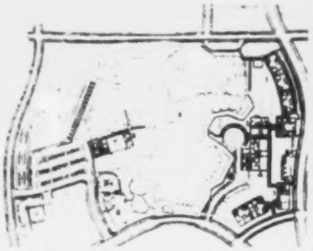
Total project costs
$19.6 million

Cost per square foot
$131

Space per student
107 square feet

Cost per student
$13,920

Completion date
August 1997



SITE PLAN

Celebration School
Celebration, Florida

Schenkel & Shultz

In designing Celebration School, Schenkel & Shultz Architects of Orlando, Fla., and William Rawn Associates, Architects of Boston, Mass., faced the challenge of developing a strategic master plan for the K-12 school on property that was largely wetlands. Also, because the property was located in the new town of Celebration, the campus needed to fit in with the unique building styles of the town. The resulting facility references the southern Florida school vernacular of the pre1940s, and the inclusion of arcades and louvered sunshades reflects the school's temperate setting. Twin towers identify the entrance to the school, which blends effortlessly with the "old-fashioned hometown" community of Celebration. A covered bridge crosses the wetland area forming a natural sciences laboratory below and connects the academic buildings with the athletic areas.

Celebration School is divided into 10 "neighborhoods" with 100 to 120 students, creating a flexible teaching environment of multiple-size interconnected spaces. The "hearth" area denotes a space for quiet activities, while "flex" zones are high activity areas, and "wet" areas are laboratories. Small-group zones provide teaching areas for up to 15 students and allow hands-on instruction. Large-group spaces hold 25 to 30 students, ideal for lectures and presentations. Each "neighborhood" has its own planning and conference room.

ADMINISTRATION BUILDING

CLASSROOM

INTERIOR

Celebration School was designed with a built-in technology infrastructure incorporating flexibility to adapt to evolving standards over the next 10 years. Technology is an essential learning tool and is used extensively, driving fiber deep into each "neighborhood" and connecting to the homes of students. Through the use of technology, the school has successfully enhanced communication, personal development, critical thinking, and social responsibility. ■

EXTERIOR

K-12
NEW CONSTRUCTION

Hornberger + Worstell
170 Maiden Lane
San Francisco, CA 94108
Mark R. Hornberger, AIA
(415) 391-1080

Design team

Mark R. Hornberger, AIA
President/Design Principal

Ron E. McLester, AIA
Project Manager

Jerzy Wollak
Senior Designer

Client

Robert Louis Stevenson School
(408) 626-5300

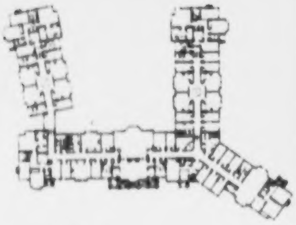
Grade span
K-12

Current building capacity
60 students, five faculty families

Current building area
27,000 square feet

Completion date
July 1995

COLUMN DETAIL


FLOOR PLAN

Willametta Keck Day Hall (Residence #3) Robert Louis Stevenson School Pebble Beach, California

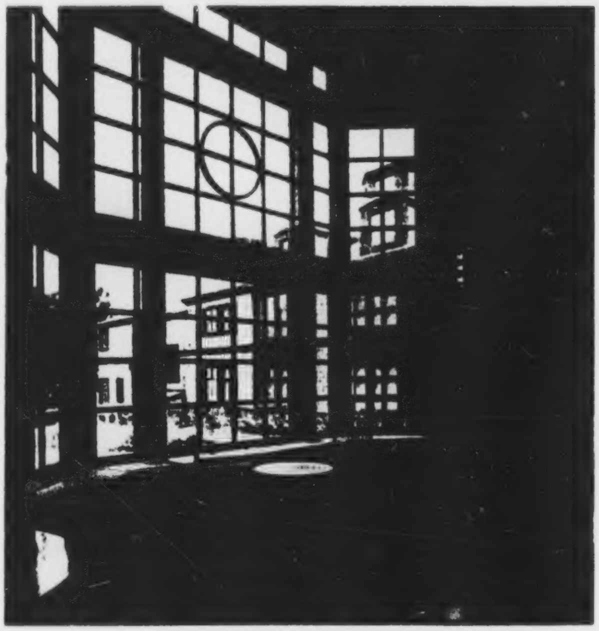
Hornberger + Worstell

Willametta Keck Day Hall is a coeducational residential accommodation for 88 students and five faculty families. It includes space for seminars, common area activity, tutorial rooms, and resident faculty offices.

The existing campus vernacular (wood frame and trellised entryways combined with masonry columns) provides a California background and amplifies the larger campus context.

Our design combines these forms and materials expressing the identity of the institution: multiethnic, multicultural, and coeducational. The hall's central location and southeast wing, which extends over a pedestrian walkway, further integrate the building into the central campus and invite the school community to participate in activities. The building, nestled between two existing buildings, completes the day "quad" space at the heart of the campus.

The school wanted a mixed-use facility to accommodate residential units for girls and boys in separate wings, but allow coeducational student social interaction in the common room, seminar, and tutorial areas. Unusual for a West Coast high school campus facility, this mixed-use residential building combines programmatic elements (student and faculty residential, coed and single-sex common rooms, and study tutorial rooms that are generally segregated into separate facilities).


INTERIOR 2

Our primary program objective was to promote coeducational academic and social interaction among resident students in a nonintrusive setting. By combining common spaces for group study/socializing, as well as spaces for quiet study and activities, we achieved a project design that respects a student's transition from private family life to an away-from-home, coed school experience. ■

EXTERIOR

INTERIOR 1

K-12
PROJECT IN PROGRESS

MHTN Architects, Inc.

Number 2 Exchange Place
Salt Lake City, UT 84111

B. Jeffrey Stebar/Kyle S. Taft
(801) 595-6700

Design team

Lynn A. Jones, AIA
Principal-in-Charge

B. Jeffrey Stebar, AIA
Eric Migacz, AIA
Design Architects

Kyle S. Taft, AIA
Project Manager

Randy Boudrero, LA
Landscape

Bill Erickson, AIA
Project Architect

David Sheehan, AIA
Interior Design

Client

Catholic Diocese of Salt Lake City
(801) 328-8641

Grade span
Pre-K-12

Current building capacity
High school, 1,700;
Elementary school, 700

Current building area
High school, 273,171 square feet;
Elementary school, 75,098 square feet

Total project costs
$37.2 million

Cost per square foot
$107

Space per student
High school, 161 square feet;
Elementary school, 107 square feet

Cost per student
$15,500

Completion date
July 1999

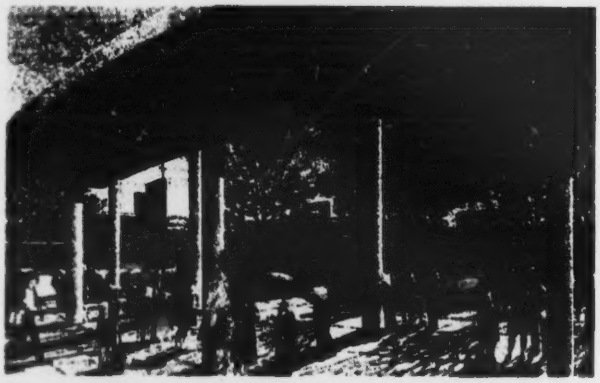
Skaggs Catholic Center
Draper, Utah

MHTN Architects, Inc.

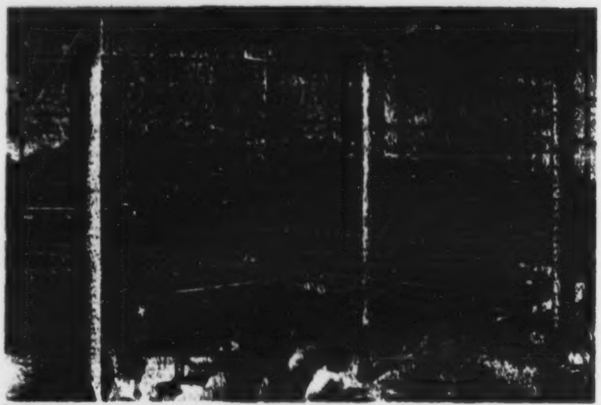
With the dramatic backdrop of the Wasatch Mountain range, the Skaggs Catholic Center establishes a hub for Catholic education in the southern Salt Lake Valley. Intended to present a bold, modern image that keeps in mind traditional Catholic values, the new campus establishes a simple, clear identity and will serve as a lasting tribute to the Skaggs family.

Located on a 60-acre site in Draper, Utah, the campus is organized around ideas prevalent in early Christian architecture and planning. Definition of axis, vistas, edges, and cloister define the central "campus round," a circular area of formal gardens symbolizing the ideals of Catholic community. A sculptural bell tower provides focus to the campus and an identity within the surrounding community. Each building is arranged and designed to maximize the spectacular mountain and valley views surrounding the campus.

After completing a nationwide search for a model school, the Catholic Diocese of Salt Lake in conjunction with the Skaggs Family Foundation selected MHTN's award-winning Jordan High School. MHTN then completed the design and construction document phases in seven months, as scheduled and on budget. ■

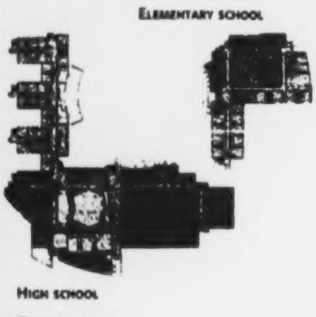


EXTERIOR DETAIL



INTERIOR

EXTERIOR



FLOOR PLANS

Adams County Junior/Senior High Schools
Adams County, Ohio

Steed Hammond Paul Inc.

MIDDLE/HIGH SCHOOLS
NEW CONSTRUCTION

Steed Hammond Paul Inc.

1014 Vine Street, Suite 2100
Cincinnati, OH 45202

J. Andrew Paul, AIA
(513) 381-2112

Design team

J. Andrew Paul, AIA
Principal-in-Charge

Joe Toman, AIA
Project Architect

Kristen Haase
Matthew Murtha
Architectural Designers

Angela Ucker
Interior Designer

Client

Adams County/Ohio Valley Local School District
(937) 544-5586

Grade span
7-12

Current building capacity
550 to 850

Current building area
427,120 square feet

Total project costs
$44.6 million

Cost per square foot
$104

Space per student
158 square feet

Cost per student
$16,520

Completion date
August 1997

Serving the needs of a rural and poor county in Ohio, Adams County Schools sought to improve educational opportunities throughout the district and increase community interaction with and pride in the schools. Using the Schoolhouse of Quality community input process, four identical junior/senior high schools were designed to fulfill the district's objectives while providing tremendous value for the taxpayers.

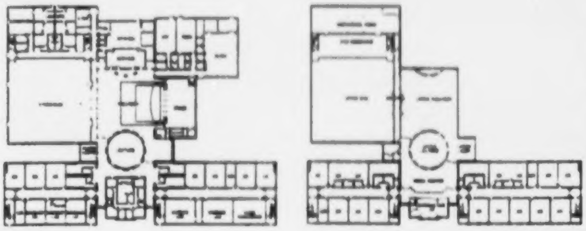
Though the schools look the same on the outside, adaptations were made for site and enrollment variations. Distinctive entry and classroom wings separate seventh and eighth grades from ninth through 12th grades. Rich, exciting colors enhance public spaces, accent architectural elements, and help distinguish between the junior and senior high areas. In the lobby, display cases showcase student achievement, and a heritage wall enables each school to highlight local history. A central network system, distance learning labs, and voice, video, and data access in every classroom provide the technology resources to connect classroom to classroom, school to school, and the district to the world.

MEDIA CENTER

STUDENT ENTRY LOBBY

In order to be open after school hours, all community spaces are directly adjacent to the main public space. The round, stepped design of the large group classroom provides a place for formal assemblies or informal gatherings. Zoning off the media center gives community groups access to technology resources. The unique design of the theater enables the space to be used for dining and study during the day and as a 350-seat theater (with full stage and lowered pit orchestra area) for nighttime arts performances. The theater and gymnasium also open up to handle large school or community events.

Easily maintained and cleaned, the brick exterior, noncolor galvalum metal roofing, and darker interior colors will help the schools retain their positive image in the community. ■


FIRST FLOOR

SECOND FLOOR

FLOOR PLAN

EXTERIOR

MIDDLE/HIGH SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.
4101 McEwen, Suite 300
Dallas, TX 75244
James Calvin Walker
(210) 546-5511

Design team

James Calvin Walker
Project Manager

Bill Wadley
Chief Designer

Konrad Judd
Assistant Designer

David Burt
Project Architect

Joe Craddock
Structural Engineer

Arq. Manuel Naredo
Consultant in Monterrey

Client

American School Foundation of Monterrey
(011) 52-83354850

Grade span
6-12

Current building capacity
1,000

Current building area
153,000 square feet

Total project costs
$6.1 million

Cost per square foot
$40

Space per student
153 square feet

Cost per student
$6,080

Completion date
September 1996

American School Foundation of Monterrey
Monterrey, Nuevo Leo, Mexico

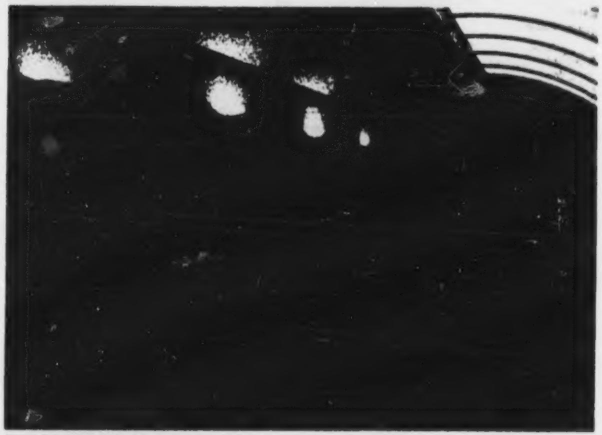
SHW Group, Inc.

The campus is located in the western section of Monterrey in the Santa Catarina area near the entry to Huastece Canyon. The school complex includes academic buildings, playfield locations, and parking lots.

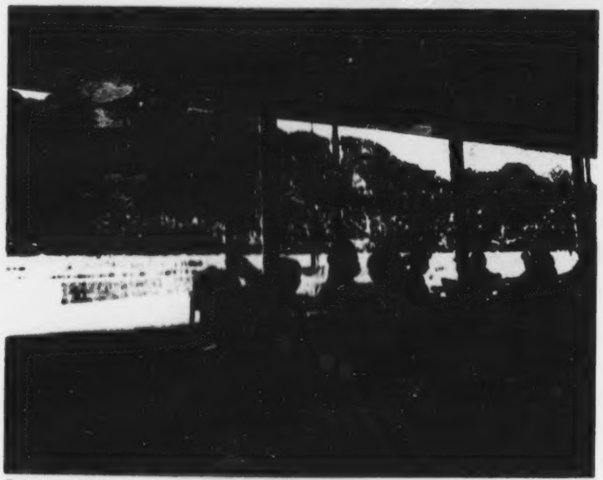
The new middle/high school is located approximately 20 minutes from the existing school on 40 acres of land. The new site allows the American School to provide the playfields the existing site does not have. Three soccer fields, one football field, a baseball field, hero softball fields, eight basketball courts, and four tennis courts create an enjoyable environment for physical play during and after school.

The building initially will house academic classrooms, science labs, technology classrooms, computer labs, library, administration, two gymnasiums, physical education dressing rooms, kitchen/dining, a 500-seat auditorium, and a black-box theater. ■

ENTRY DRIVE

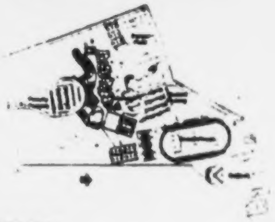


2ND FLOOR STAIRS



STUDENT PATIO

MAIN CORRIDOR



SITE PLAN

MIDDLE/HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Foreman Architects Engineers, Inc.
P.O. Box 189
Zelienople, PA 16063
Clifford G. Foreman
(724) 452-9690

Design team

Phillip Foreman
Principal-in-Charge

Paul Fackler
Project Manager

C. Roger McIntyre
Project Architect

Robert Dorsch
Mechanical Engineer

Steven Cotherman
Electrical/Technical Engineer

Gary Giles
Structural Engineer

Julianne Rogozewicz
Interior Designer

Michael Arnold
Construction Manager

Client

Beaver Area School District
(724) 774-4010

Grade span
7-12

Current building capacity
1,372

Current building area
205,490 square feet

Building area before addition/renovation
197,315 square feet

Total project costs
$16.9 million

Cost per square foot
$82

Space per student
150 square feet

Cost per student
$12,333

Completion date
August 1996

Beaver Area Middle School/High School
Beaver, Pennsylvania

Foreman Architects Engineers, Inc.

The Beaver Area School District project began with a complete feasibility study to determine the most comprehensive plan to meet the goal of bringing the 35-year-old high school up to current building and educational standards, including ADA compliance.

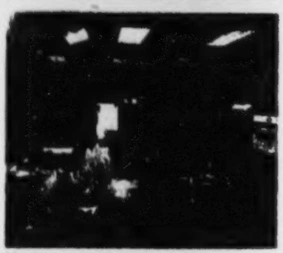
Exterior work included replacement of entryways, windows, a curtain wall, and the roof. Several small courtyards were closed to create additional space for art and multiple usage.

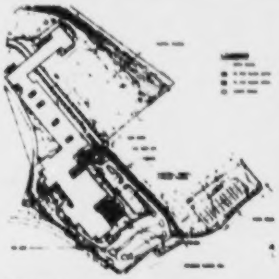
Building alterations included conversion of the traditional library into a high-technology information center, conversion of a seldom used metal shop to a choral room, conversion of the wood shop to a technology education laboratory, relocation of science rooms to create team teaching opportunities, creation of plan/conference centers for teams, revision of the kitchen and cafeteria to enlarge the dining space and to provide a pleasant environment, and an elevator to provide complete access throughout the school.

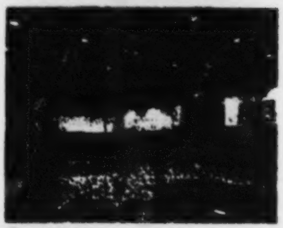
Renovations provided an enhanced energy efficient building shell, new heating system, increased electrical capacity, data/telecommunications networking throughout the building, and upgrades in nearly all existing spaces to meet accessibility and building code requirements.

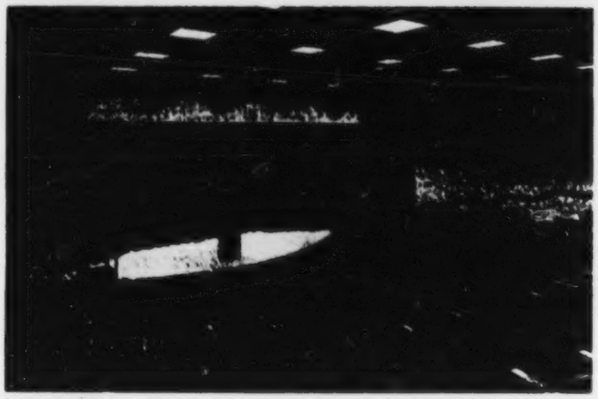
The facility is on a 41-acre site and consists of 31 classrooms, three special education classrooms, nine science labs, two business classrooms, one computer lab, two art rooms, one band room, one choral room, one homemaking room, one technology education room, a 5,150-square-foot library, a 1,000-seat auditorium with stage, a 9,435-square-foot gymnasium, and a 400-seat cafeteria with kitchen. ■

EXTERIOR


HOME ECONOMICS CLASSROOM


SITE PLAN


GYMNASIUM


AUDITORIUM

MIDDLE/HIGH SCHOOLS
NEW CONSTRUCTION

Habiterra Associates

1279 N. Main Street, P.O. Box 609
Jamestown, NY 14701

Paul Hedin
(716) 664-4710

Design team

Paul Hedin
Architect, Principal

David Schoening
Design Architect

Rod Drake
Landscape Architect

Gordon Peterson
Specification Writer

Bob Nordin
CADD Manager

Ed Hanson
Design Coordinator

Bob Heintz
Designer

Gene Ingersoll
Director of Project Observation

John Shedd
Project Observation

Wilson, Klaes, Brucker, & Worden, P.C.
Engineering Consultants

Client

Michael O'Brien
Superintendent, Ret.
Cuba-Rushford Central School
(716) 968-1556

Grade span
6-12

Current building capacity
750

Current building area
140,500 square feet

Total project costs
$13 million

Cost per square foot
$80

Space per student
187 square feet

Cost per student
$17,200

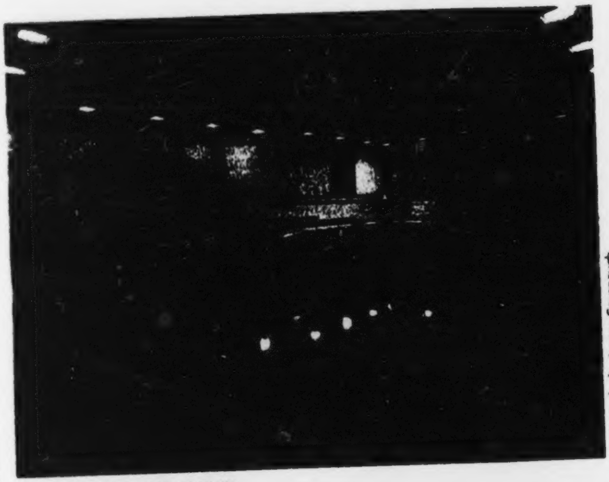
Completion date
September 1996

Cuba-Rushford Middle/High School
Cuba, New York

Habiterra Associates

The Cuba-Rushford Central School District is a recently merged school district in western New York state. The district's persistent superintendent and board have worked for a new middle/high school for many years. The New York State Education Department offers building-aid incentives for recently merged school districts. Habiterra Associates worked closely with Superintendent Michael O'Brien and the board of education and developed a creative design that would maximize the amount of building aid for this project while fully addressing the wishes of the school district.

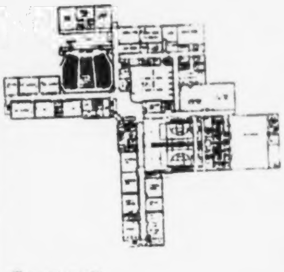
The new middle/high school was placed on 72 acres of farmland at the foothills of the Allegheny Mountains. The fully developed site includes a baseball field, football/track/field complex, tennis courts, soccer fields, and softball fields. The building area covers 140,500 square feet and offers students and the community access to a library, computer technology classrooms, agriculture and technology labs, an auditorium, music facilities, a gymnasium, a competitive swimming pool, science labs, and distance-learning facilities. The creativity of the team allowed the district to pay off the bond note upon completion. The facility is a dream come true for the school district and a major accomplishment for O'Brien and the board of education. ■


COMPETITIVE SWIMMING POOL

Photography by James Cavanaugh

COMPUTER TECHNOLOGY CLASSROOM

EXTERIOR


FLOOR PLAN

OTHER
SPECIAL PURPOSE FACILITIES

Reynolds, Smith and Hills, Inc.

1715 N. Westshore Blvd., Suite 500
Tampa, FL 33607

John M. Pehling, AIA
(813) 289-5550

Design team

John M. Pehling, AIA
Project Designer/Manager

John Quattrone, AIA
Project Officer

John D. Schwanebeck, RA
Production Manager

George N. Thann, AIA
Project Architect

Richard Stead
Architectural CADD Technician

Yoo-Jin Kim
Intern Architect

Juan Padin
CADD Technician

Client

University of South Florida Board of Regents
(813) 974-0334

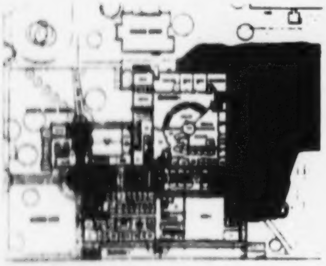
Grade span
College level

Current building area
87,899 square feet

Total project costs
$10.5 million

Cost per square foot
$119

Completion date
April 1997



FIRST FLOOR PLAN

David C. Anchin Center for the Advancement of Teaching, University of South Florida
Tampa, Florida

Reynolds, Smith and Hills, Inc.

The design of the new David C. Anchin Center for the Advancement of Teaching creates a dynamic place within the University of South Florida's College of Education, the largest urban college of education in the nation. The mission of "Improving the Schools of Today and Inventing the Schools of Tomorrow" is diligently pursued at the center and provides a think tank for educators from around the world to gather and pursue fresh and unconventional ideas and practices.

The new facility is designed and configured to maximize communication and collaboration and to provide a sense of community for students and faculty. The Anchin Center is seen as a place where risk-taking and creative experimentation can lead to discoveries and relationships that can benefit and influence professionals in ways that hold the promise of meeting the needs of children and society in the coming century.

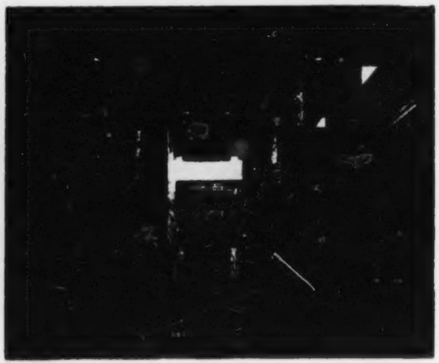
COLLEGE OF EDUCATION

EXTERIOR

The heart of the facility features a four-story rotunda adjacent to an outdoor "learning lawn," providing a gathering place for learning. Technology is infused throughout the facility, allowing students and faculty to access information easily in conference rooms, classrooms, teaching labs, lounges, corridor alcoves, and outdoors. All teaching labs and classrooms feature flexible furnishings and lighting systems as well as the ability to handle electronic curriculum media and distance learning through the fiber-optic communication system.

The center was built as a concrete frame structure with exteriors clad in three colors of brick and masonry and green glass with aluminum framing on the exterior. The interiors are built with painted drywall; carpet, vinyl tile and porcelain tile floors; and acoustical layin and drywall ceilings. Dual air handlers on each floor provide redundancy for the changing loads in a modern teaching facility. ■

ADMINISTRATION CORRIDOR



LOBBY

OTHER
SPECIAL PURPOSE FACILITIES

PJHM Architects Southwest

647 Camino De Los Mares, #201
San Clemente, CA 92673

David J. Hansen
(714) 496-6191

Design team

David J. Hansen
Principal-in-Charge

Thomas Kruse
Managing/Design Architect

Leo Johnson
Project Architect

Mark Ours
Intern

Nack Engineering
HVAC/Plumbing

Dick Banneck Design
Kitchen Equipment Consultant

Coil & Welsh Associates Inc.
Structural

R. Dale Hadfield, ASLA
Landscape

Client

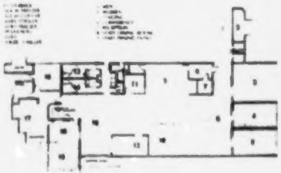
San Jacinto Unified School District
(909) 654-2785

Current building area
7,000 square feet

Total project costs
$1.6 million

Cost per square foot
$226

Completion date
June 1997



FLOOR PLAN

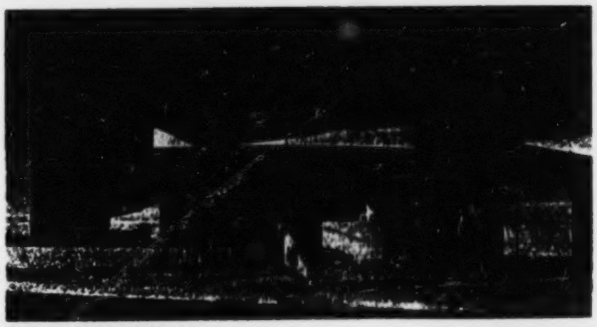
Central Kitchen Facility
San Jacinto, California

PJHM Architects Southwest

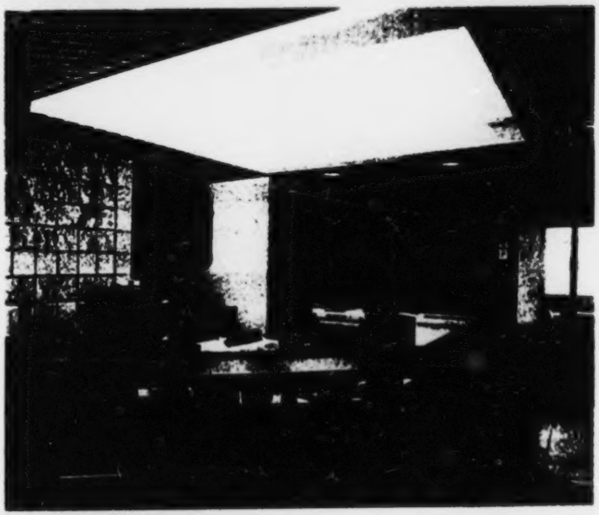
In 1994, the San Jacinto Unified School District, located in inland Southern California, needed to replace and relocate its existing central kitchen.

Design criteria called for a state-of-the-art, 7,000-square-foot food preparation facility to produce 10,000 meals per day. Food-service personnel began utilizing the highest technology food-service building and equipment in an environment that is easy to clean and user friendly. Special attention was given to wall and ceiling materials to maximize sound absorption in a loud environment and to comply with health department requirements.

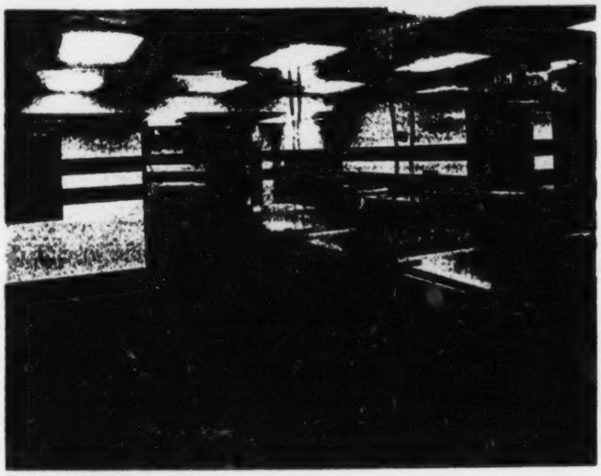
The building is constructed of steel studs, light steel trusses over a slab on grade concrete foundation system. Exterior material, an acrylic plaster finish system applied over rigid insulation panels, resulted in a textured plaster appearance that performs well under extreme temperatures.



OVERALL BUILDING VIEW



LOBBY-RECEPTION AREA



FOOD PREPARATION AREA

Different styles of concrete masonry enhance the design at street-front locations. Building massing is based on volumetric interior requirements, tall storage volume at the rear of the building, midheight volume at food preparation areas, and low volume at administrative offices (all with parapets to screen rooftop equipment). The design is punctuated with the use of standing seam roofing in shapes that shelter shipping and receiving docks, southwest facing windows, and main entry. ■

OTHER
NEW CONSTRUCTION

tBP/Architecture

2300 Newport Blvd.
Newport Beach, CA 92663

Anne Burger
(714) 673-0300

Design team

John W. McMurray, AIA
Principal-in-Charge/Senior Designer

Gary Moon, AIA
Designer

Steven M. Redmond, AIA
Project Manager

Etienne G. Runge, RA
Project Architect

Client

Coast Community College District
(714) 432-5813

Grade span
College level

Current building capacity
1,763

Current building area
45,000 square feet

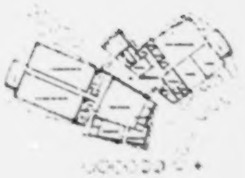
Total project costs
$6.1 million

Cost per square foot
$136

Space per student
26 square feet

Cost per student
$3,460

Completion date
April 1997



SITE PLAN

Coastline College Higher Education Center Garden Grove, California

tBP/Architecture

The Community College Higher Education Center is a three-story, 45,000-square-foot education building designed as a high-tech distance-learning satellite facility to support the needs of the community of Garden Grove. The facility is the result of a cooperative agreement between Garden Grove and the Community College District. The Community College occupies 25,000 square feet, while the City Redevelopment Agency leases the remaining 20,000 square feet for educational uses. The facility is organized with 24-hour access to the ground floor, which contains a central lobby, and a Computer Information Center (CIC) with a 60-computer workstation. Two technology-augmented conference spaces and faculty offices adjoin the CIC. A student store and a stepped 120-seat lecture space round out the always-accessible facilities.

AUDITORIUM

EXTERIOR

EXTERIOR DETAIL

STAIRWAY

The second level houses six technology-augmented classroom spaces, with flexibility to support the variety of instructional programs offered by the community college. The third level supports four additional technology-augmented classrooms and two specialized labs for the science (biology, chemistry, and Earth science curricula) and arts programs. It also contains a small lecture facility located above the large lecture space. Facility support spaces include a telecommunications room accommodating the telephone network, computer servers, and Internet link accessibility for a district-wide data network. The link allows all appropriate spaces to receive and generate both internally and externally generated television programming.

Program constraints included the following:

- The preexisting street easement and the necessity to provide approximately 300 parking spaces left an awkward parcel of available building area.
- The city wanted the building to reinforce and encourage a pedestrian flow from its civic center and central public park to the historic main street retail area.
- The building had to be zoned as two independent buildings that operate both jointly and separately.
- The building's efficiency ratio, as dictated by the college, had to be better than 85 percent. ■

OTHER
RENOVATIONS/ADDITIONS

Hidell & Associates Architects

3033 Kellway Drive, Suite 120
Carrollton, TX 75006

Bill Hidell, AIA
(972) 416-4666

Design team

Bill Hidell, AIA
Principal

Ed Kepner
Project Architect

Kathryn Miller
Staff Architect

Richard Torrez
Production

Client

Greenhill School
(972) 661-1012

Grade span
5-12

Current building capacity
240

Current building area
18,500 square feet

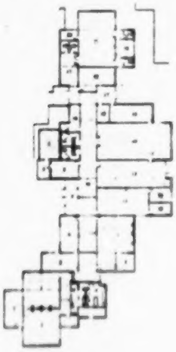
Total project costs
$825,000

Cost per square foot
$45

Space per student
77 square feet

Cost per student
$3,437

Completion date
March 1996



FLOOR PLAN

Greenhill School Fine Arts Center
Addison, Texas

Hidell & Associates Architects

This building was designed by Pratt, Box & Henderson in 1972 as an open classroom middle school. Upon completion of a new middle school, the administration considered alternate uses for this 18,500-square-foot building.

The location of the building in the Greenhill campus, at the crossroads of the upper school, middle school, gymnasium, library, and cafeteria, made it a natural transition facility. The existing structure was a building without an obvious entrance. The first task was to create a "front door" providing access off the pedestrian entrance into the campus. Second, the linear form of the building provided for the creation of a student gallery to exhibit current work and connect the visual and performing arts programs.

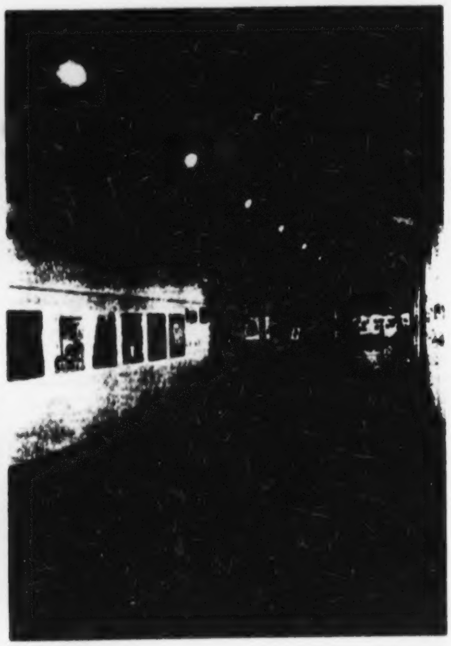
ENTRANCE LOBBY

The Fine Arts complex provides studio space for:

- recital hall,
- band,
- practice rooms,
- dance,
- orff instruments,
- debate,
- photography,
- two- and three-dimensional art, and
- Cavalcade (year book).

The student gallery or street provides additional performance area and has become the student mall. ■

PERFORMANCE HALL



STUDENT GALLERY

OTHER
NEW CONSTRUCTION

Durrant

942 CyCare Plaza
Dubuque, IA 52001

Max N. Schmidt, AIA
(319) 583-9131

Design team

Max N. Schmidt, AIA
Project Director

Kevin J. Eipperle, AIA
Design Architect

Jeff Klopfenstein
Mechanical Engineer

Cleven McChesney
Electrical Engineer

Todd Donkle, PE, SE
Structural Engineer

Client

Southeastern Community College
(319) 752-2731

Grade span
Post secondary

Current building capacity
305

Current building area
16,300 square feet

Total project costs
$1.4 million

Cost per square foot
$85

Space per student
53 square feet

Cost per student
$4,490

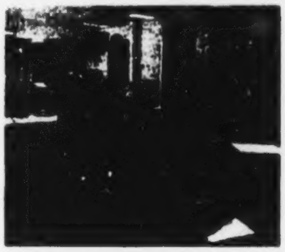
Completion date
January 1997

SITE PLAN

Southeastern Community College
Keokuk, Iowa

Durrant

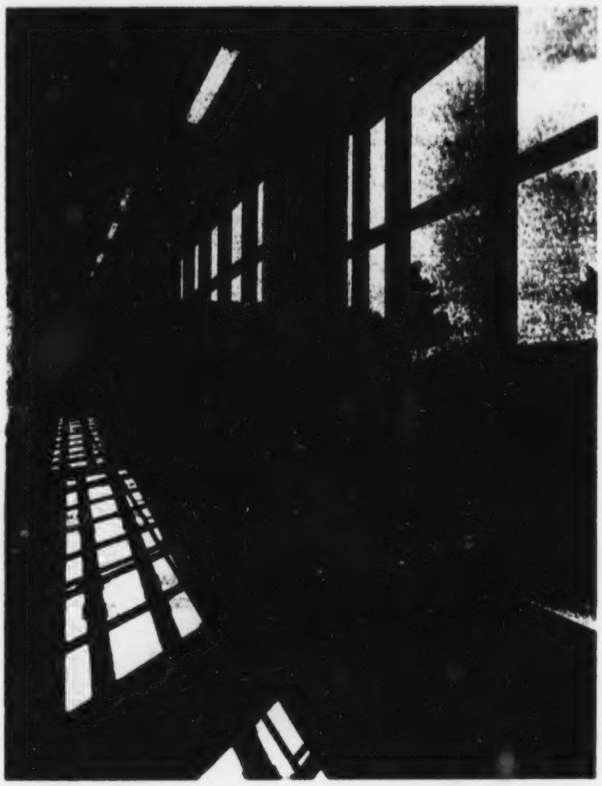
The design and construction of Building 40 on the Southeastern Community College campus is the third and final phase of a plan to replace existing campus buildings. The campus concept is to create a more open complex of facilities with landscaped yards and patios between the buildings and parking areas. The design theory is based on establishing a campus setting with buildings that have a substantial and permanent character. This concept has been carried out successfully through all phases of this building complex.



LAB

The buildings are one-story facilities with connecting links providing indoor circulation. They have decorative concrete block walls with single-ply membrane and prefinished metal standing seam roofs.

Building 40 is a 16,300-square-foot facility of primarily classroom space and specialized instructional spaces for nursing classroom/lab, fiber optics, office technologies, and a lecture hall. Because Buildings 20 and 30 on the Southeastern Community College campus primarily provide support spaces (such as library, student center, dining, child care, and administrative offices) there is a high concentration of instructional space in Building 40. The space, when calculated using the support spaces in other campus buildings, amounts to approximately 92 square feet per student. ■



CORRIDOR

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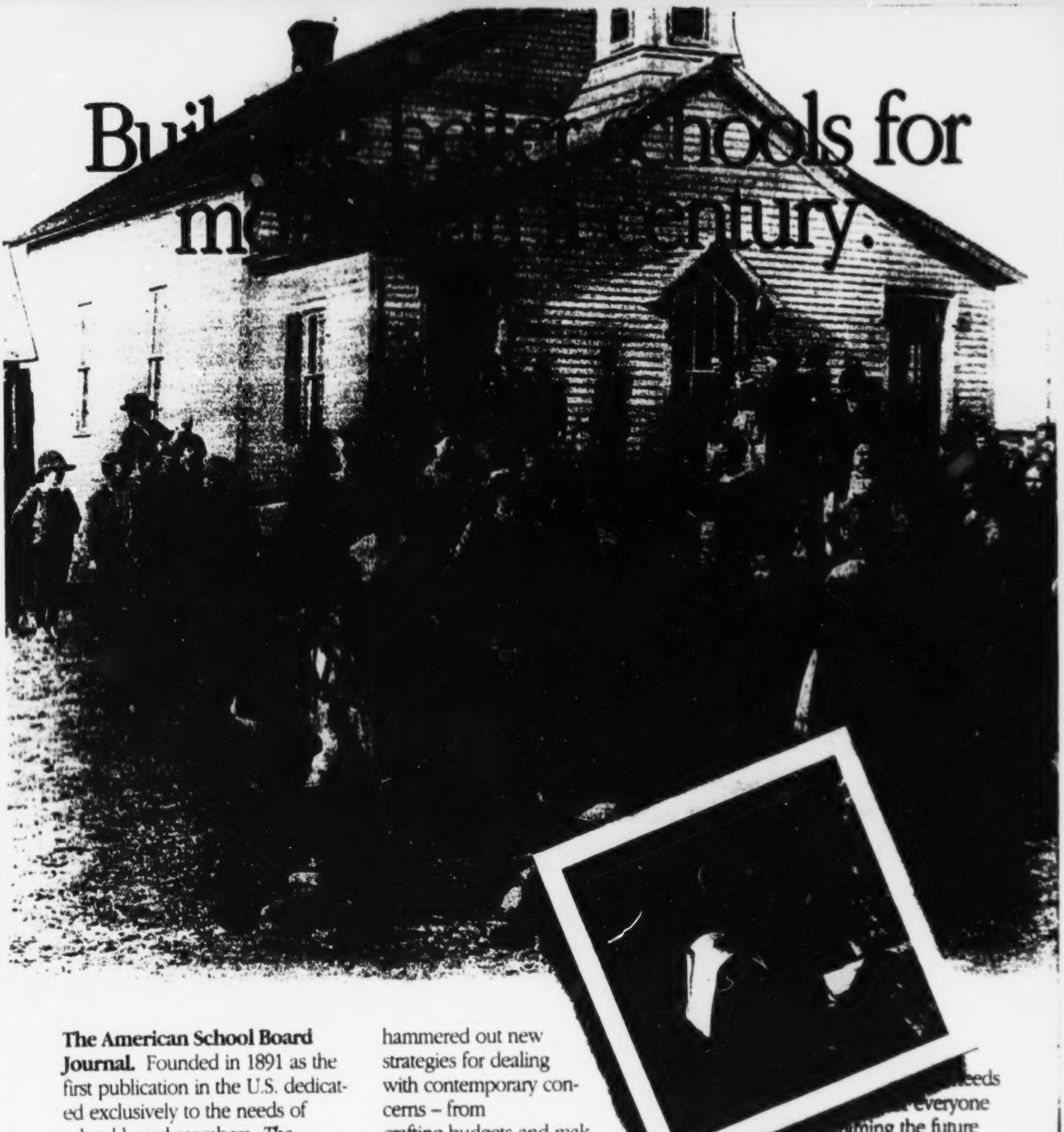

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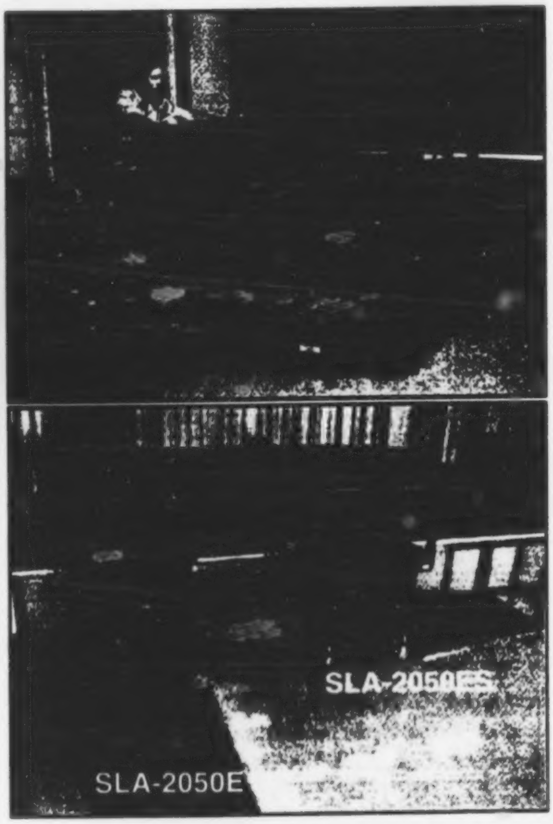

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A SCHOOL LEADER'S GUIDE TO ARCHITECTURAL SERVICES

ISSUE 8/1999

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Centers of Community

Schools have always been centers of teaching and learning. But in the not-so-long ago days of the one-room schoolhouse, the town school stood also as a physical—and social—community centerpiece. It was in the school that the community gathered for civic discourse and fellowship, and to the school that people came when there was a crisis to address or an event to celebrate.

Today's schools play a similar role in the community—or should. Last fall, the U.S. Department of Education, the White House Millennium Council on Education, and the Getty Foundation conducted a symposium on school design entitled "Designing Learning Environments as Centers of Community." According to the "Citizen's Action Guide" drafted at the symposium, schools should be designed to: (1) enhance teaching and learning and accommodate the needs of all learners; (2) serve as a center of the community; (3) involve all stakeholders in the planning/design process; (4) provide for health, safety, and security; (5) make effective use of all available resources; and (6) allow for flexibility and adaptability to changing needs.

We heartily agree—and so do the school leaders, facilities planners, and architects whose innovative construction and renovation projects are showcased in the pages that follow. These bright, beautiful schools are truly centerpieces of their communities.

These projects were selected from among those submitted to our panel of distinguished architects and facilities planners. The review panel selected **Centennial Middle School**, in Lino Lakes, Minn., as the 1999 Grand Prize winner. Designed by ATS&R, Inc., this facility is described in detail on pages 6-7.

The reviewers also singled out six Citation Award Winners for praise:

- **Lake Orion High School**, Lake Orion, Mich., URS Greiner Woodward Clyde, page 108-109.
- **Lincoln Middle School**, Indianapolis, Ind., Fanning/Howey Associates, Inc., page 79.
- **West Somerville Neighborhood School**, Somerville, Mass., HMFH Architects, Inc., page 64.
- **Wayzata High School**, Plymouth, Minn., Armstrong, Torseth, Skold & Rydeen, Inc., page 130.
- **Rio Rancho High School**, Rio Rancho, N.M., John Friedman, AIA Architect PC, page 123.
- **Star Valley High School**, Afton, Wyo., Valentiner Crane Brunjes Onyon Architects, page 129.

The pioneering designs represented here are sure to help you make your school district's construction projects the centerpieces of your community. ■

Anne L Bryant
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Executive Publisher

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From the Reviewers

Trends in School Design

By C. William Day

Designing schools isn't the same job it was just 10 years ago. Construction and renovation are at record levels, in part because education leaders have begun to understand that the school building and physical environment have a potential to affect student learning. Planners and designers are trying to create buildings that are compatible with the latest in teaching methods and school curricula.

We must build schools that help prepare young people who are creative, productive thinkers and motivated, compassionate, responsible, and flexible individuals. We can do more to help mold a quality producer, an effective team member, a competent communicator, and a positive contributor to our country.

The vision of what tomorrow's schools might look like is materializing slowly across this country. There no longer is a logical reason for rectangular classrooms housing 25 to 30 kids in a room. Rows and aisles equal passive learning.

People are often wary of new ideas, and in schools, that resistance can present itself on many fronts. We've had a tendency to talk about reform and then reach for the rearview mirror. To figure out where we were going, we looked at where we have been, and in the process, we recreated the schools of our own youth. The traditional, double-loaded corridor school with same-sized classrooms on either side of a long hallway does not lend itself to tomorrow's teaching and learning styles. Educators, planners, and architects must show the public that it is possible, important, and necessary not only to transform our schools, but to design learning facilities that differ sharply from the traditional school facilities of the past.

Organization trends

As school districts look for new ways to improve student learning, they are beginning to scrutinize how they are organized. Routine decisions such as scheduling and grouping are now recognized as key elements in reform because of their impact on teaching and learning. Behind many of the changes today is a desire to personalize school. For most of this century, schools have defined themselves as organizations based on hierarchies, rules, and efficiency. Some are breaking away from that organization. They view themselves as communities based on relationships, shared values, and concern for children's development.

Here are some trends in organization that affect school design:

- Students are organized into smaller units—houses, clusters, academies, or neighborhoods.
- Teachers are organized in interdisciplinary groups.
- Academic and vocational and technical education are integrated.
- Elementary teachers stay with the same class for two or more years.
- Students have private work and storage spaces and places to work as part of a small team with their own computer workstation. They also have access to local- and wide-area networks, video-conferencing, printers, and multimedia distribution.

Theatre at Lake Orion High School, Lake Orion, Mich.

School size

When planning new schools or modernizing existing ones, one of the toughest tasks is determining how many students you want the school to house. In the United States, big has long been a synonym for better. More recently, however, a growing dissatisfaction with larger schools and school districts has emerged, partly in response to increases in disturbing social trends such as youth violence and drug abuse. Research on the relationship between school size and academic performance is largely inconclusive, but recent research from the U.S. Department of Education reinforces the popular perception that bigger schools do indeed report proportionally more student behavior problems, including absenteeism, tardiness, class cutting, and tobacco use. (See *Violence and Discipline Problems in U.S. Public School: 1996-97*, published in 1998 by the National Center for Education Statistics, NCES publication no. 98-030, available online at http://nces.ed.gov.)

Personal experience, bolstered by such findings, suggests that students might be more successful in schools with smaller popula-

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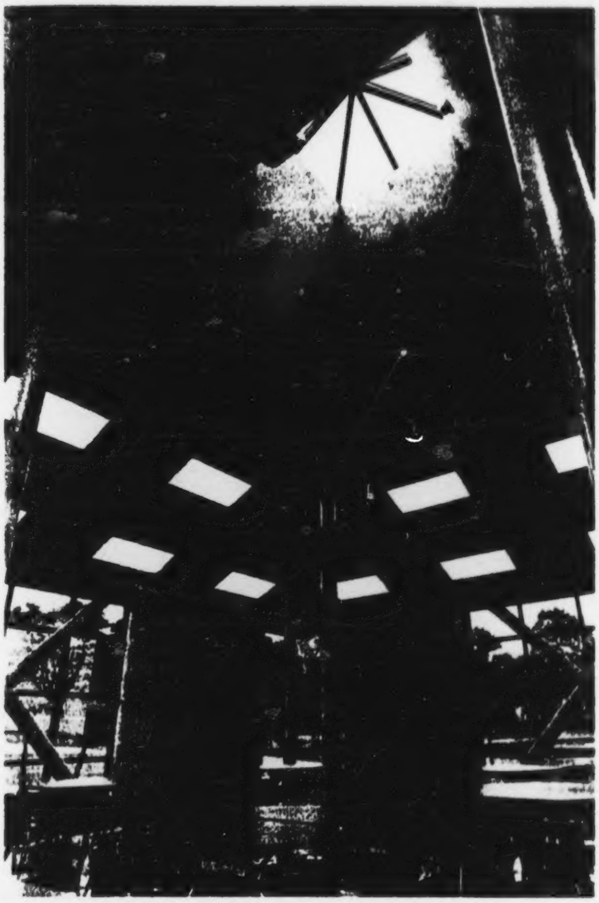
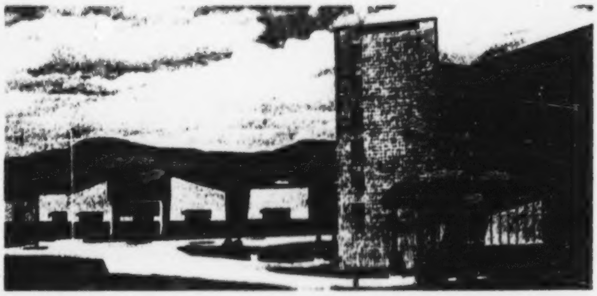


Cafeteria at New Elementary School No. 26, Elizabeth, N.J.



Exterior of Star Valley High School, Afton, Wyo.

tions. School leaders, as a result, often find themselves pressured into making decisions to use scarce financial resources to build smaller or additional school buildings rather than focusing on programs and initiatives that make significant improvements in teaching and learning. More often, however, districts determine school size not on the basis of research, but because of other factors—political, social, and demographic.

When districts must build large schools, they often reduce an individual building's overall sense of scale by establishing smaller units within the building. This is accomplished by creating schools-within-a-school, academies, neighborhoods, and magnet themes. Interdisciplinary, multi-age grouping and "looping," in which a teacher stays with the same group of students for two or more years, are becoming common in elementary schools. All of these efforts are attempts to break large numbers into smaller, more student-friendly units in the belief that achievement and behavior will improve.

Class size

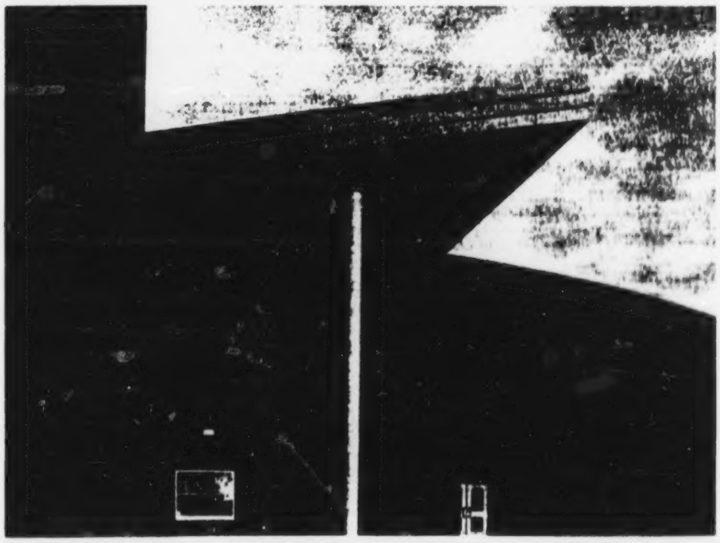
Parents, teachers, some state legislators, and the federal government are clamoring to reduce class size. Research in Tennessee suggests that greatly reducing class size in kindergarten and primary grades will have a positive effect on student achievement—especially when combined with other pedagogical reforms. (See "Less Is More," by Susan Black, in the February 1999 issue of *The American School Board Journal*.) Attempts to replicate the Tennessee research elsewhere have run into problems, however, and there is no research-based list of optimum class sizes covering all grade levels, all types of students, or all subject areas. Smaller classes will not, in and of themselves, result in greater achievement for all students.

Within the range of what is affordable, however, it is reasonable to suppose that smaller classes are preferable for young children. And in fact, there is a growing national perception from parents and state legislators that smaller classes enhance student achievement and behavior. School leaders should keep both research and perceptions in mind when planning new schools—and, depending on the state, ensure that plans comply with legislatively mandated class sizes.

Demographics

Nationally, public school enrollment in grades K-12 is expected to increase significantly between now and 2007. What makes this growth trend different from the surge in the late 1960s is that this time, we see a long, slow, rising wave with no immediate downturn in sight. For example:

- Public high school enrollment is expected to increase by 11.1 percent in the next 10 years as the babies of the so-called echo boom hit their teenage years. Taxpayers will be supporting nearly 15 million high school students in 2007.



Geometric entry canopy at Lake Orion High School

525

- Hispanic-Americans and Asian-Americans will be the fastest growing segments of the student population.
- By the year 2007, according to *The Condition of Education, 1998*, U.S. public and private schools will have to educate 54.3 million children—up from 50.6 million in 1995, the latest date for which the National Center for Education Statistics reports figures. (These statistics are from NCES publication no. 98-013, available online at http://nces.ed.gov.)

Cost of new schools

How much do new educational facilities cost? Public school districts put more than $12 billion worth of construction in place in 1997, according to *American School & University* magazine. This is the second year in a row that more than $12 billion has been spent on school construction, mirroring the increasing numbers of students moving through our school systems.

This issue of *Learning By Design* contains 104 projects of which 39 were new elementary schools, 25 were new middle schools, and 22 were new high schools. The median average of square feet per student and median cost per student for these projects is shown in the table below.

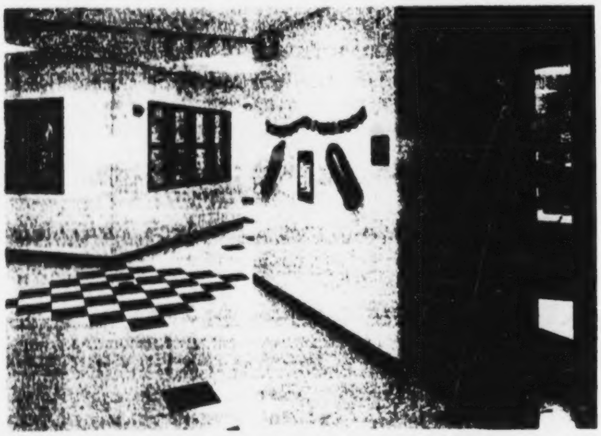
SIZE AND COST OF SCHOOLS

TYPE OF SCHOOL	SQUARE FEET PER STUDENT	COST PER STUDENT
Elementary schools	108	$11,278
Middle schools	156	$15,328
High schools	175	$17,119

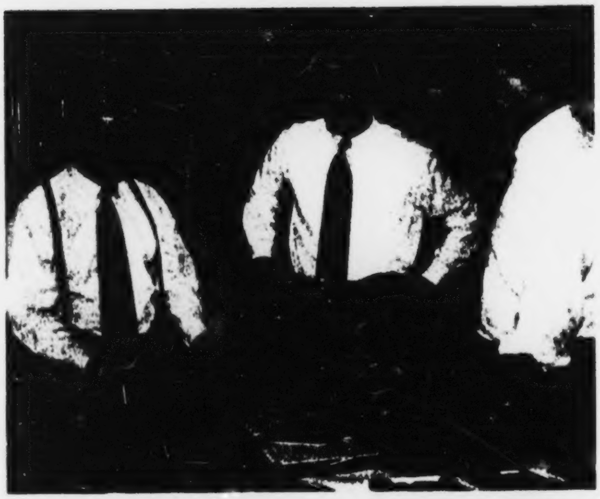
These national comparisons can be a little tricky. You might think that when you compare an elementary school in Maine, say, with one in Oregon or Texas, you are comparing apples to apples, but given different conditions in different parts of the country, you might be comparing apples to oranges. So, a little caution is in order when you compare these average size and cost statistics to statistics about school facilities in your district. These averages can serve as a rule of thumb, however, for comparing your district with others in the nation and with your economic and educational peers.

Conclusion

Whether you are an educational facility planner, an architect, or a school board member or administrator, your challenge is responding to the often conflicting demands placed on instructional space and satisfying district and community demands for high-quality instruction in a high-quality facility. Meeting this challenge requires a clear understanding of the current and the anticipated direction of the educational program to be housed in the facility you are planning to build or renovate. It also requires a flexible design that can accommodate changes in educational programming and in the number and characteristics of the students to be served. The trends identified here probably aren't the last reforms your schools will see, but to ignore them is unwise. ■



HALLWAY OF ROSE PIONEER ELEMENTARY SCHOOL, HOLLY, MICH.



ENTRIES FOR THIS YEAR'S *LEARNING BY DESIGN* WERE REVIEWED BY, LEFT TO RIGHT, C. WILLIAM DAY, SENIOR ANALYST, KBD PLANNING GROUP, INC., BLOOMINGTON, IND.; ROBERT WIDGER, AIA, ELLERBE BECKET ARCHITECTS, WASHINGTON, D.C.; AND DALE LEIDICH, AIA, SFCS ARCHITECTS, ROANOKE, VA.

C. William Day, who chaired the Learning By Design reviewing panel, is senior analyst with KBD Planning Group, Inc., in Bloomington, Ind.

For more information

The American Institute of Architects,
http://www.e-architect.com/pia/cae/cae.asp

The American School Board Journal, http://www.asbj.com

American School & University Magazine, http://www.asumag.com

Construction Management Association of America,
http://www.access.digex.net/~cmaa/index.html

Council of Educational Facility Planners International,
http://www.cefpi.com

Design Share, http://fielding@designshare.com/

FacilitiesNet, http://www.facilitiesnet.com/

Florida Educational Facilities Planners Association, Inc.,
http://www.fefpa.org

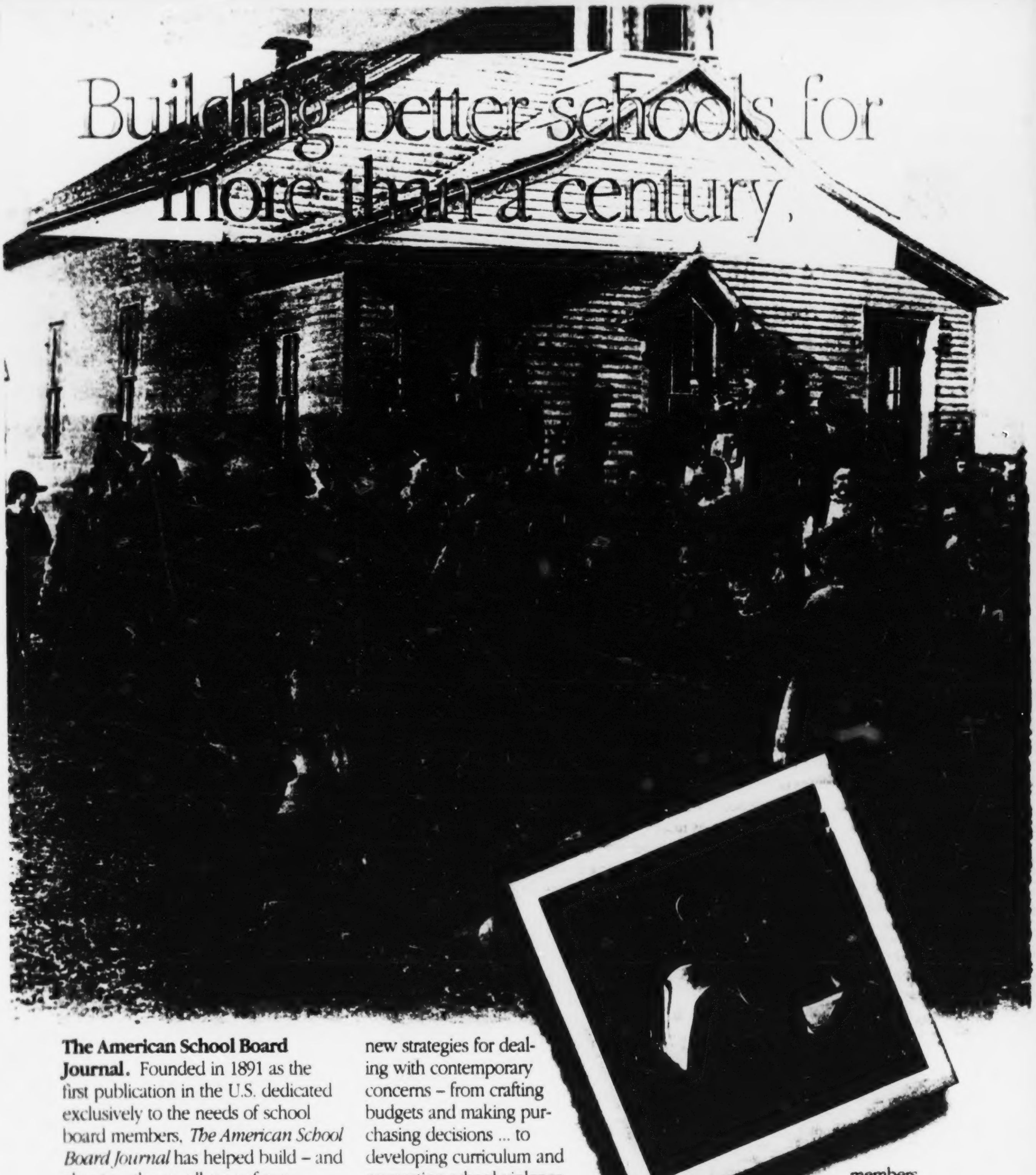
KBD Planning Group, Inc. http://www.kbdplanning.com

National Clearinghouse on Education Facilities,
http://www.edfacilities.org

North Carolina School Design Clearinghouse,
http://www.dpi.state.nc.us/clearinghouse/

School Design and Planning Laboratory,
http://www.coe.uga.edu/sdpl/sdpl.html

School Planning & Management Magazine, http://www.spmmag.com



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Grand Prize Winner Profile

Centennial Middle School

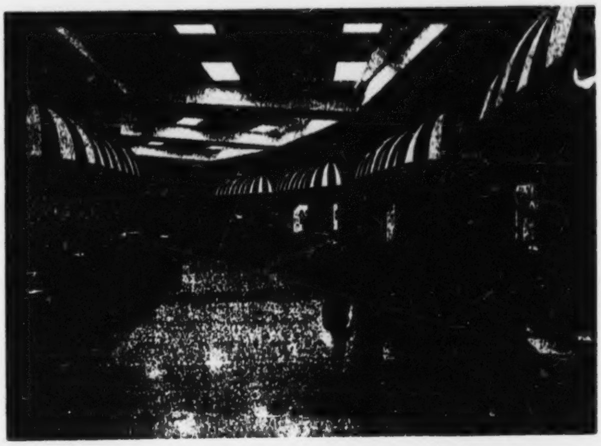
A commitment to quality and to community

1999 GRAND PRIZE WINNER

Expectations were high for Centennial Middle School, even before it was constructed. It was to be the first middle school in the Centennial Independent School District No. 12, in Lino Lakes, Minn., and the community passed a bond referendum to fund it. Also, the school would be located in a prominent site near a busy interstate highway, representing the district to all who drive by.

Along with high expectations, Centennial Middle School presented another challenge to the architectural/engineering firm of ATS&R, Inc. of Minneapolis. The district wanted Centennial to be large—big enough to hold 1,800 sixth-, seventh-, and eighth-graders. But the school board, administration, and staff didn't want the large school to seem impersonal or institutional. The solution, says project architect Paul Snyder: "Break the school down into smaller units."

It was this aspect of the design of Centennial Middle School—making the large seem small—that caught the eyes of the *Learning By Design* reviewers. Each of the building's three, two-story wings contains four "houses," or groups of classrooms. The houses are paired, two on the first floor and two on the second floor. Each grade has a house in the school: the sixth-grade house is located near the gymnasium, the seventh-grade house is near the media center; and the eighth-grade house is next to the auditorium. Students remain with their houses for math, English, science, and social studies classes.

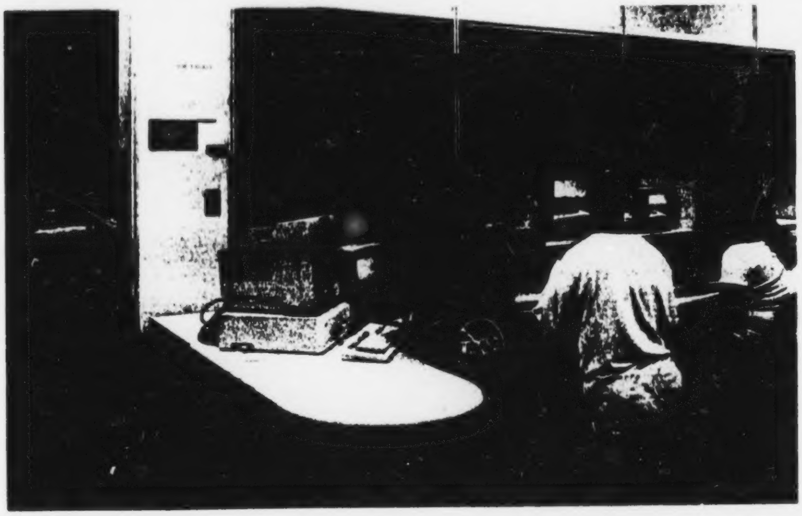


Food court

In addition to sharing the same group of students and the same preparation period throughout the year, teachers on each floor share work and office areas, as well as a common, multipurpose classroom.

"With teaching styles changing, teachers want to team teach," says C. William Day of KBD Planning Group, Inc., Bloomington, Ind., who chaired the *Learning By Design* review panel. And Centennial, the reviewers noted, is designed to integrate team teaching with the building structure.

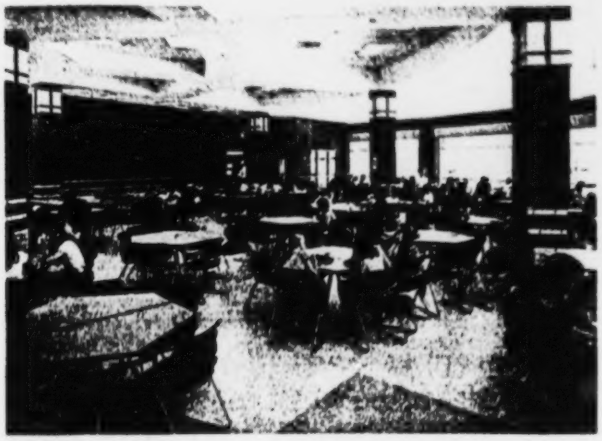
The reviewers also were impressed with the way the architects took advantage of the site in their design for the school. Centennial was built on undeveloped land with a wooded area and wetlands in an outer suburb of Minneapolis. Snyder and his team leaders—Tom Fabick and Dean Beeninga—designed the school with two fronts. The public approach on the southeast leads to the public areas of the school, including the media center, a 600-seat auditorium, and the cafeteria. "When there's an activity going on, the whole area comes alive," says Snyder.



Studio

The student approach is on the northwest side of the building, where the buses pick up students and drop them off. The students enter the "spine" of the building, a curving corridor that connects the houses to the other parts of the building. The student entrance fronts the interstate and is thus the first—or perhaps the only—view many people have of the school. "We wanted both sides to look inviting," says Snyder.

"The public spaces have nice development



Cafeteria

and detail," says Robert Widger, AIA, of Ellerbe Becket Architects, Washington, D.C., and *Learning by Design* reviewer. "All the public spaces have special touches, such as nooks for seating in the commons and the display case as a feature in the common space."

Making sure such a large building—256,000 square feet—had lots of natural light was a priority for the architects. The media center features an 80-foot long skylight, with another skylight in the back of the cafeteria and clerestory windows on the second floors of the house wings. "We wanted to bring light into the deep spaces," says Snyder.

Despite the scaled-down effect of the school, its large size allowed for features such as a modular technology laboratory, as well as traditional shop, home economics, art, and music.

One feature of the school that the *Learning By Design* reviewers noted with special approval is the 600-seat auditorium. "The auditorium has the quality of a high school auditorium," says Widger. "It's hard to believe it's a middle school auditorium."

The school's design committee, led by Peggy Flathmann, worked closely with ATS&R's technology department to develop a design that would equip the school with up-to-date technology and also allow it be fitted with new technology as the school ages. Each classroom has at least one computer with full-time access to the district network and the Internet. The rooms also have telephone lines and television monitors that can broadcast cable television programming, as well as closed circuit announcements from the school's television studio. Dale Leidich, AIA, of SFCS Architects, Roanoke, Va., and *Learning By Design* reviewer said he particularly liked the niches built for the televisions in public spaces, thus integrating the units into the design of the building.

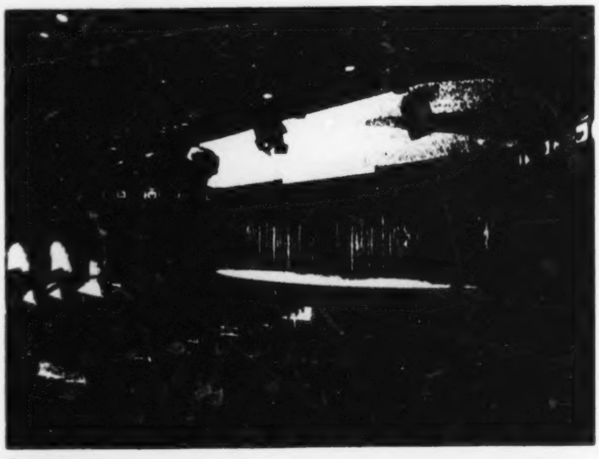
Another feature of note is the curved cafeteria. "The school has a food court instead of a traditional serving line in the cafeteria," says Widger. "It's more like going to a mall with a series of restaurants. It's an open and inviting atmosphere."

ATS&R landscape architects incorporated the school's landscape features—the wooded area and the wetlands—into outside classrooms by making them accessible via a system of pathways. A holding pond was created to protect the existing wetland area on the site.

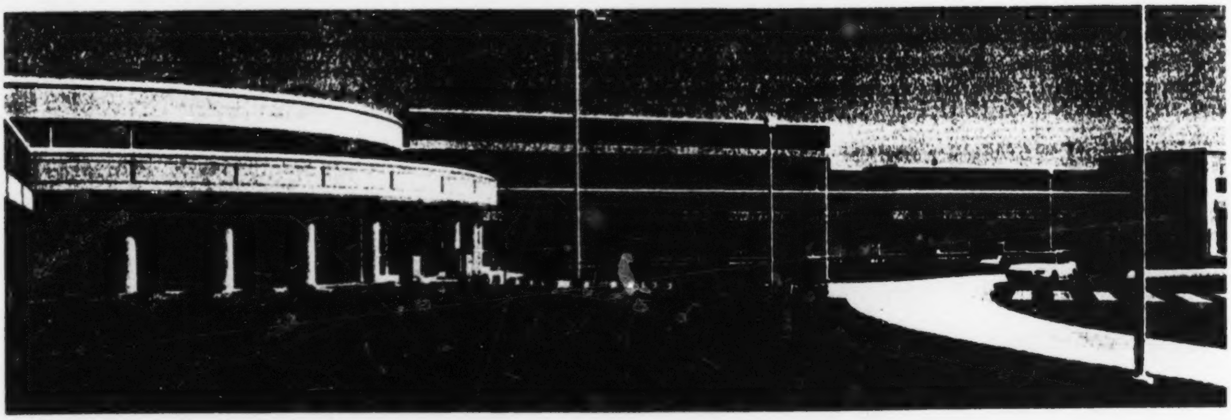
Centennial was designed, at the school district's request, with community use in mind, as well as student use. In addition to the auditorium, the school has eight tennis courts and a football field, all of which are open to the public. The pathways through the wooded areas link up to a city trail system.

"Centennial is a good community school. It has all the right ingredients for middle school students, but also for after-school and community use," says Day. "That's what makes bond referendums sell. The building is a nice addition to the community."

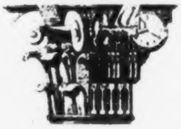
A compass in the school's lobby reminds students, staff, and public alike of Centennial's educational direction: a belief that learning is a life-long collaborative process involving all members of the community. ■



Auditorium



Exterior



Planning a School

Use this AIA checklist to renew and reinvigorate your schools

Local school boards across the nation are addressing the challenge of providing modern school facilities that will contribute to the achievment of our students. This checklist is designed to help you think and talk about renewing your schools through innovative planning and design and high-quality construction.

The success students have in school—measured in terms of high test scores, low truancy, high employment rate, close parent-student-faculty interaction, or whatever scale you may choose—is affected by many factors, including the quality of instruction, instructional time and materials, parental involvement, and how students feel about school. The very fact that you are talking about the educational welfare of your children and community—as school leaders, parents, and neighbors—is an indication that your school system is on solid footing.

It is a daunting task to discuss how learning is affected by physical factors such as building age, ventilation, visual factors, color of interior of facilities, amount of space, design of space, lighting, site size, building use, building maintenance, special instructional facilities, school size, site location, security features, access for individuals with disabilities, and aesthetic appeal.

To make the task more manageable, this article sets out six elements for discussion: structural condition, environmental quality, size and capacity, safety and security, site location, and symbolic value and aesthetics.

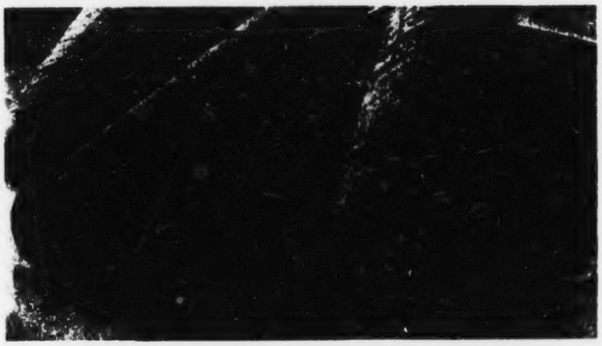
Facility performance goals are certainly important. Always keep in mind, though, that student achievement is the central concern.

Structural condition

- Sixty percent of U.S. schools need extensive repair or replacement of at least one major building system, such as a roof or boiler. Almost 14 million students attend school in buildings regarded as below standard or even dangerous.
- The quality of facilities may be related to student attitudes toward school, self-esteem, security, comfort, and prosocial behavior.
- Parental involvement is related to the condition of school buildings and student achievement.
- How much instructional time is lost or compromised as a result of building-related problems?
- Are students more likely to be absent when they are compelled to attend schools in poor condition?
- Are parents less likely to move into neighborhoods where schools are perceived to be outdated or deteriorating?

Environmental quality

- Consider air quality, thermal factors, lighting, and noise level.
- Most states report inadequate HVAC systems and lighting as the key environmental problems in schools. The primary thermal problem is cooling, not heating.



- Be alert for tightly sealed buildings, use of allergy-promoting floor coverings, and toxic emissions from cleaning fluids, paint, and other frequently used substances.
- There is a relationship between the quantity and quality of light and visual performance. The quality of light is related to brightness, width of spectrum, and glare.
- Exposure to full-spectrum lighting, such as daylight, has been associated with better school attendance, greater concentration, more positive moods, and better scholastic performance.
- Effective teaching is partly a function of acoustic design. Open-design schools don't provide the acoustic privacy necessary for student-teacher communication and student concentration on assignments.
- Especially for schools built in the late 1950s to mid-'60s, asbestos may be present in insulation, ceiling panels, floor coverings, lab surfaces, and concrete. Abatement will be necessary before renovation work begins.

Size and capacity

- The ideal high school size seems to range from 400 to 900 students. Students tend to learn less in smaller schools and considerably less in larger schools.
- To create a sense of "smallness," many large secondary schools have subdivided into "houses," each with its own student body, faculty, and administrator.
- The typical high school contains about 150 square feet per student, the typical junior high about 130 square feet, and the typical elementary school about 110 square feet.
- The relation between small class size (fewer than 20 students) and higher student achievement is strongest in first through third grades.
- The traditional one-size-fits-all classroom is becoming obsolete. Special areas may be appropriate for music, physical education, vocational education, home economics, laboratory sciences, foreign lan-

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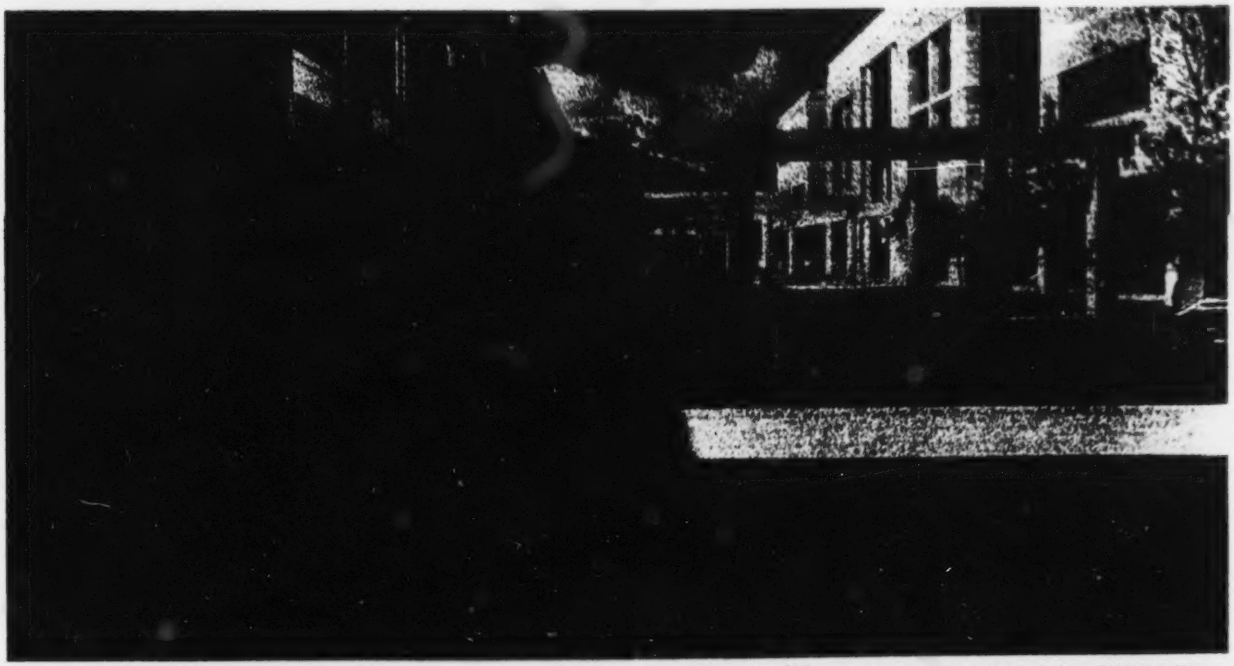

Miami Edison Middle School, Miami, Fla. (Heisenbottle Architects): Dating to the 1920s and '30s, this former high school is an excellent example of the regional period of architecture, which the school board wished to preserve. The board also required larger, improved areas for administration; a media center; and student-services, skill-development, and resource rooms. The design transformed a deteriorated landmark back to its original grandeur and brought its function into the 21st century with a complete range of student services.

guages, and mathematics.

- Desks for individual students are being replaced by work stations and furniture appropriate for cooperative learning groups.
- An array of spaces of various sizes may include central gathering places; presentation arenas; work spaces for groups of different sizes; quiet areas for one-to-one learning sessions; independent-study nooks; and offices where teachers can test and counsel individuals, organize individualized study programs, or phone parents.
- Computers are reducing the need for large libraries and increasing the importance of networked access in classrooms or satellite computer labs.
- Especially in multiuse schools that include community services, consider offices for social services workers, clinics, and community centers; open school-based libraries and computer labs for adults; day-care centers; parent education facilities; and special reception areas. Such spaces encourage parental involvement and volunteerism.

Safety and security

- Smaller schools tend to have fewer behavior problems. Where there are fewer students, it is easier for teachers to get to know each one and build constructive teacher-student relationships. And school employees can more easily recognize strangers on campus and supervise students not in class.
- Good lighting and clear sight lines along hallways, in locker rooms, and in other areas where adult supervision may not be continuous can reduce the likelihood of inappropriate behavior, as can access control, graffiti-resistant surfaces, and elimination of nooks and crannies that are difficult to monitor.
- Design elements that help faculty watch student activity include administrative offices that overlook courtyards and school entrances, teachers' offices distributed throughout the building with glass walls looking into stairwells and corridors, and corridor windows.
- It's important to note that students will take care of a school they are proud of. On the other side of the coin: At what point does concern for safety result in design decisions that actually promote misconduct and challenges to authority?
- A state-of-the-art, multiuse facility properly located can stimulate the revitalization of a declining neighborhood.

Site location

- Location affects many things, such as travel time to and from school, proximity to learning resources, the diversity of the student body, access to parents, and patterns of community development.
- A comprehensive outlook involves community-building initiatives for economic, service, education, and physical development.
- Schools can play a central role in determining where people with children live. Some corporations will work with the school district to create satellite learning centers for the children of employees.
- The natural environment around a school has great teaching potential as learning landscapes, with adjacent wetlands, nature trails, gardens, and playground motifs.
- Schools can take advantage of stimuli-rich settings such as proximity to zoos and museums. There is value in having access to rich and varied experiences and many knowledgeable adult mentors.
- Nearby businesses, public buildings, and parks permit easy student access. Such placement may call for the renovation of existing facilities rather than new construction.
- If large schools cannot be accommodated in business districts and novel sites, is it better to sacrifice size for location?

Symbolic value and aesthetics

- Schools often define a community's boundaries. Schools also often symbolize certain qualities, values, aspirations, and experiences for individuals. In a harsh neighborhood, the school can mean opportunity, hope, stability, and a safe haven in a world of insecurity and transience, or it can symbolize failure and oppressive adult authority.
- Aesthetics encompass the qualities that help determine the symbolic value of the structures and forms that human beings experience.

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Collins Middle School, Salem, Mass. Salem (Earl J. Flansburgh + Associates, Inc.) consolidated its two middle schools into one in a 150,000-square-foot former high school, which was fully renovated and expanded with a 90,000-square-foot addition. The school serves 1,100 students as part of a comprehensive $39 million program. To reduce the impact of such a large scale, the school is divided into three separate components ("wharfs"), each accommodating sixth, seventh, and eighth graders. Architect Earl R. Flansburgh + Associates, Inc., gave the school unity through the centralized library/multimedia area. "The architect really got the point that we wanted the media curriculum to be central," said Co-principal Mary Manning. "Each wharf is tied together with the two-story square midbuilding, with full access to storage, magazines, everything."

- Students compelled to attend unattractive and poorly maintained schools may feel diminished and less valued as a consequence. Our school facilities are a tangible symbol of our commitment to education, and the message is not lost on students.
- One message is conveyed when vocational/technical classrooms are up front with glass walls for everyone entering to see the student accomplishments. Another message is sent when vocational/technical instruction is relegated to an annex or the rear of the school. ■

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For More Information

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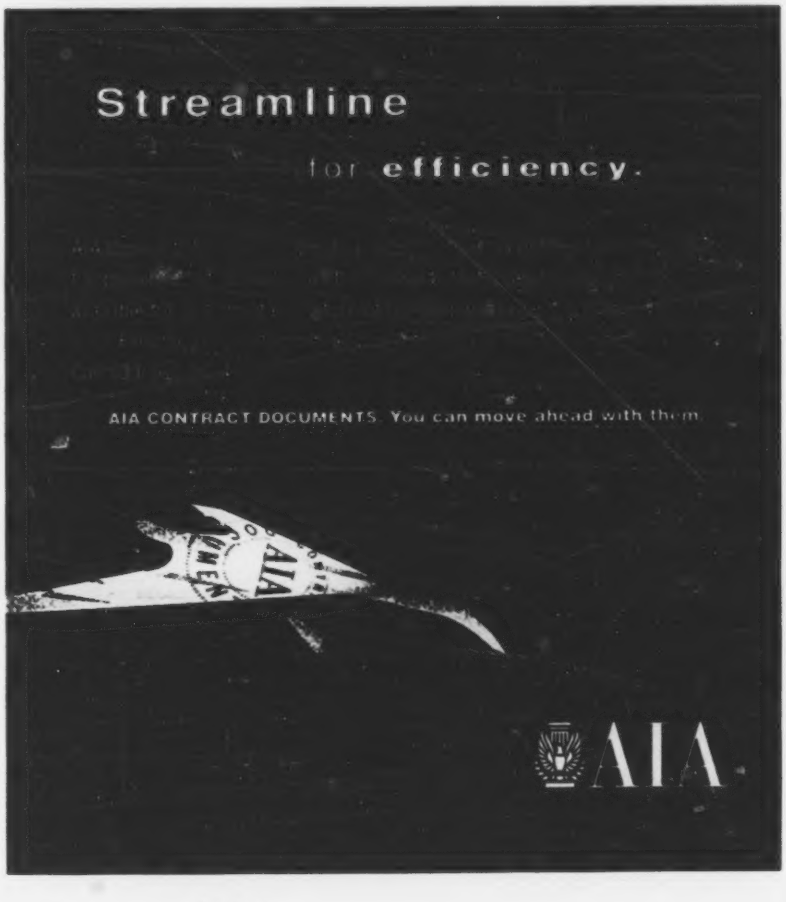
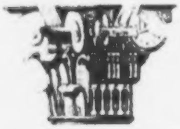




Reinventing Schools

Guidelines for major renovations and additions

By Peter A. Gisolfi, AIA, ASLA

Many school buildings are renovated or added to every generation or so, and some more often than that. They might be badly deteriorated and require renovation just to survive. Perhaps they no longer function properly or have become technologically obsolete. They might not support modern curricula. Or they might simply be too small to serve growing student populations. Usually it makes more sense to change the structures that exist, and preserve most of their value, than to build entire new schools.

At any given time, in communities across the nation, thousands of school renovations and additions are under construction or in the planning stages. Chances are, any school over 30 years old has been renovated or added to at least once, and many older schools have undergone changes two or three times or more.

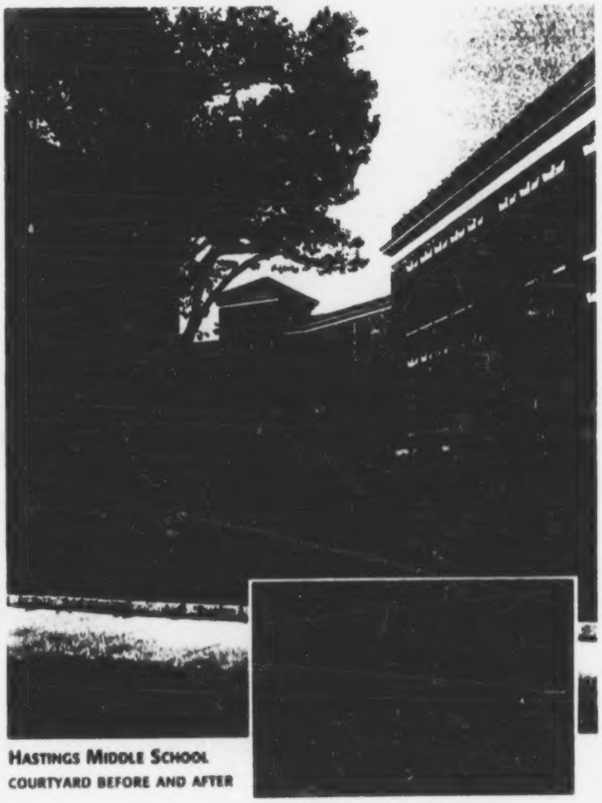
Scarsdale High School public entry lobby before and after

Two ways to change a school

There are two ways to go about changing a school building. Incremental change is one. That is, fix the pieces that need fixing, and add the space that is required. Meet the evident needs and redesign only designated portions of the building.

For limited, straightforward projects, incremental change is generally a valid approach. Adding five new classrooms, upgrading the energy management system, and replacing the windows in a 200,000-square-foot high school will not usually require rethinking the entire building. The problems are apparent, and so are the solutions.

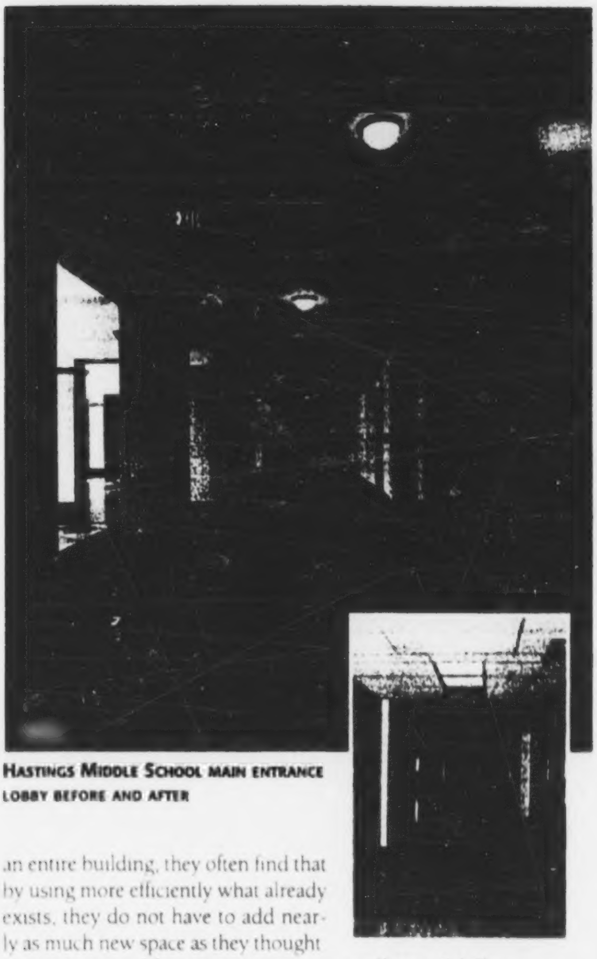
The other way to change a building is to reinvent it—that is, to ask the most basic kinds of "big picture" questions and rethink the entire school as if planning a whole new structure. Schools that have been reinvented are essentially new buildings based on the old buildings, which have been redesigned to meet new objectives.



Hastings Middle School courtyard before and after

While there is usually no need to reinvent a school when renovations or additions are limited in scope, there can be substantial benefits when the planned changes are extensive. If your school district has decided to add 10 new classrooms to a school building and, at the same time, relocate the library, enlarge the cafeteria and the gymnasium, install a new heating system, add cables for a computer network, and simplify the entryway and corridor layouts, you have a valuable opportunity to reevaluate most aspects of the school. The entire building can be updated to make it more efficient, provide proper spaces for today's educational programs, and fix problems brought on by poorly conceived renovations and additions done in the past.

When there are many changes to be made, reinventing the building shows you how to integrate the changes, rather than design them as a patchwork of individual projects. And when school leaders, architects, and other members of the facilities planning team rethink



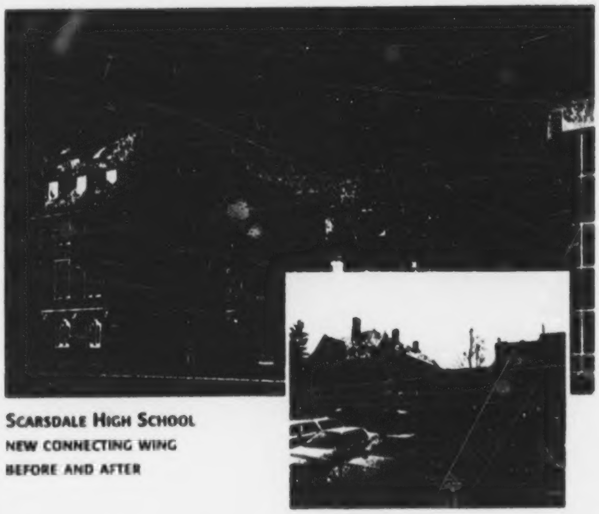
HASTINGS MIDDLE SCHOOL MAIN ENTRANCE LOBBY BEFORE AND AFTER

an entire building, they often find that by using more efficiently what already exists, they do not have to add nearly as much new space as they thought. It is not unusual for savings to run into millions of dollars.

Reinventing a school is an exercise in orderly reasoning, beginning at the beginning and following where logic leads. There are four areas of inquiry, each to be explored in order. Here, divided into those four areas, are questions you should ask your school facilities planning team.

1 **What is the school's pedagogical plan?** What studies and other activities does the school offer, and how are they delivered? It's necessary to have a thorough understanding of all the school's programs before determining what spaces are needed to accommodate them.

2 **What are the objectives of the renovation/addition?** What are the underlying reasons prompting a change in the first place? You should be able to define, specifically and in detail, what conditions you are seeking to correct and what you expect the changes to accomplish. What standard of quality do you intend to meet, and what are you willing to pay for? Do you want to tie together mismatched parts and periods of the existing structure? Should you standardize certain areas, such as classrooms and faculty offices, to provide for a fairer and more reasonable allocation of space? Do you want circulation spaces—that is, entries, corridors, and walkways—to be more logical and efficient? And so on. To develop a successful plan, you must be certain of your goals. This caveat might sound obvious, yet many projects are designed and built with no solid notion of what, exactly, is to be accomplished. As a result, the district spends much time and money on renovations and additions, and the schools still aren't right.



SCARSDALE HIGH SCHOOL NEW CONNECTING WING BEFORE AND AFTER

3 **What are the new program of space requirements?** What kinds of spaces, and how many, does the pedagogical model require? Who will use the spaces, and how will they use them? On what basis should space be allocated to the various functions and faculty? What spaces are needed to meet the school's objectives? How much total space is actually needed, now and for the foreseeable future? By answering these questions, you are defining what you need, not just in portions of the building, but throughout the entire school—translating the school's objectives and instructional program into physical spaces.

4 **How does what you need compare with what you have?** Once you know what you need, you should take inventory of what you have in the building as it exists. Then you can determine what parts of the existing building you can use and what you have to add.

Planning is critical

In developing more than 70 school renovation and addition projects over the last 17 years, my firm has learned that the key to success lies in the planning process. These are the basic principles that have served us—and our clients—well.

1 **Think holistically.** Examine the entire building, not just the portions of it where the need for change is most obvious. By examining the whole structure, the planning team is more likely to identify alternative solutions to space problems—and less likely to make changes that erode the efficiency of the building. Recognize that significant changes in some parts of a building will nearly always affect other parts as well.

2 **Ask the right questions.** Find out how much space is really required for each program and function in the school, and how that space is used. This often means asking hard questions, because there are constituencies in every school that compete for space and make strong, sometimes inflated, cases for their own requirements. Some faculty members, and some departments, do not need all they ask for, or even all they already have We often find that when we compare what is actually needed with what already exists, less new, additional space is required than anyone believed—sometimes none at all

3 Assess the viability of the existing building carefully Analyze all the spaces, identifying those that can be kept as is, those that should be fixed, and those that must be changed because they are substandard, obsolete, or badly located or because they have the wrong characteristics for their intended use (A space with a low ceiling, for example, is not appropriate for use as a gymnasium.) It's important to recognize all the possibilities of what exists before beginning to suggest what's needed

4 Take the time to identify and define objectives thoroughly. Once you know precisely what you want to accomplish, you will have a clear set of guidelines by which to formulate and then evaluate your plans

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Elements for special attention

Certain specific components and features of school buildings require special attention during the planning process. In our experience, these elements have a great deal to do with the success of a renovation, no matter what other space considerations are addressed

1 Building-wide systems Today's school buildings require modern electronic systems, including high-efficiency heating controls and other energy management systems, modern communications systems, fire alarms, and the necessary infrastructure for computer networks

2 Circulation space Circulation space is the connective tissue of a building, and it is critical to the structure's internal logic. The design should provide clear, legible ways to enter, leave, and move about the building Earlier renovations often have altered the original circulation space, and not for the better. Different corridors might have different visual languages or "looks"—materials, color schemes, finishes, and signage—making it easy to become disoriented, even totally lost. Also, renovations tend to cannibalize circulation space, until the space that remains no longer functions efficiently By bringing circulation space into compliance with the Americans With Disabilities Act (ADA), making it wheelchair accessible, it is possible to use the ADA mandates to improve the building's circulation And by upgrading the aesthetics of circulation space, it is possible to make a significant difference in the impression a school makes Handsome entries and corridors help make the whole building look good

3 Other core spaces Other shared spaces, too, should have high priorities in a renovation The library, gymnasium, cafeteria, auditorium, and multipurpose room are major facilities, and how they look and function has much to do with how the whole building is perceived.

4 Flexibility The popular notion is that all spaces should be as flexible as possible, so they can accommodate various uses In fact, however, it is not possible to make every classroom appropriate for every size class, it is far more practical to build rooms of different sizes, then use them efficiently through flexible scheduling As a major space objective, flexibility applies less to classrooms than to large spaces, such as the school's common facilities

5 Faculty work space. Well-designed work space encourages more class preparation from teachers, and properly located work space makes teachers more accessible For example, a work space for math teachers, located adjacent to math classrooms, helps create the sense of a math department, enhances the status of the subject in the school, and provides a convenient place where students can consult with their teachers Also, when a teacher is assigned permanently to a single classroom and uses that classroom not only for teaching four periods out of an eight-period day but also for preparation and consultation, the classroom is used for teaching only half the time That means an 800-square-foot space is unavailable for other classes half the time It is far more efficient to provide the teacher with a 60-square-foot office for preparation and consultation, freeing up the big classroom so other teachers can hold classes there This is a prime example of how space can be "found" through creative scheduling as a school is reinvented

6 Architectural style. The final design should integrate the changes fully into the existing structure, respecting the building's architectural history When architects are more interested in making their own design statements than in creating well-integrated structures, renovations and additions might clash with the styles of the original buildings Often a second new addition, carefully designed, can help bridge the stylistic gap between the original building and an earlier addition, refining an earlier architectural indiscretion

7 Site interactions The site is very much a part of the school, and changes in how the building relates to it can be a significant part of a renovation The school planning team should explore the possibilities of the site as an integral part of the reinventing process—not as an afterthought when everything else has been completed

Reinvented schools

The following brief descriptions of three projects suggest what can be accomplished through major renovations and additions

- Hastings Middle School/High School, Hastings-on-Hudson, N.Y. The school was a series of buildings built in 1910, 1935, and 1962,

Continued on page 17

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continued from page 15

in different architectural styles and on different levels, with major renovations in 1962 and 1976. The result was a poorly connected school with a dead-end circulation pattern, surrounding a garbage/utility courtyard. Changes were needed to provide a new guidance center, carve classrooms out of underused space, meet ADA requirements, and upgrade the infrastructure. The new plan has a circulation pattern that loops around a green courtyard, the building's focus. A new entry lobby and major common spaces, including the cafeteria, face into the center courtyard. Separate identities for the middle and high schools have been maintained while establishing a common language for all the corridors.

- Scarsdale High School, Scarsdale, N.Y.

The existing school was a series of buildings and additions constructed between 1910 and 1962. Changes over the years left the structure with unwieldy circulation, dead-end corridors, and four major departments isolated from the rest of the school. The new plan is based on three courtyards surrounded by circulation that connects all parts of the school and shares a consistent design language. The plan establishes a clear point of public entry surrounded by administrative functions and a clear point of student entry on the west side, adjacent to the student activity centers—the green and commons, cafeteria, student club offices, and auditorium. A new corridor now goes through the library, making the library the academic core of the school.

- Fox Lane Middle School, Bedford, N.Y.

The existing school is a grouping of four buildings on a rocky hillside: three academic houses and a central octagonal building, all built in 1964. The buildings function separately, and the outdoor space they define never became a true courtyard. The reinvention accommodates an increase in school population, ties the buildings together to meet ADA requirements, provides communications and technology upgrades, creates additional classrooms from the former cafeterias in each house, and provides a focal point for the school with a new building housing the library and a single common cafeteria. It also establishes the primary entry to the campus and makes the central courtyard accessible and usable for classes and social functions. The reinvented school is unified and focused on the common open space.

In the end, reinventing a school during a major renovation/addition means developing a comprehensive design that supports the school's pedagogy, meets valid objectives, and maintains the integrity of the total building. Rather than simply making changes that are not fully integrated, this process is likely to result in a school building that functions smoothly and efficiently for many years. ■

PETER A. GISOLFI, AIA, ASLA *(pgaarch@ix.netcom.com), is senior partner of Peter Gisolfi Associates, Hastings-on-Hudson, N.Y.*

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Prototype or Site-Specific?

How to determine the best building design for your district

By Craig Reynolds, AIA, and Lisa Lamkin, AIA

Increasing school enrollments have spurred a boom in school building projects, making educational construction a consistent leader in the nonresidential construction sector in recent years, according to U. S. Department of Commerce figures. It is estimated that spending on school construction in 1998 will have climbed to nearly $40 billion, a 14 percent increase over 1997. Furthermore, there is no indication that there will be any significant slowdown in school construction in the near future.

The reasons for this tremendous growth, unprecedented since the 1960s and '70s, are varied. The children of baby boomers now have school-age sons and daughters, the so-called "echo-boom generation," who are swelling existing school facilities. The healthy economy encourages a strong housing market with families moving to new developments and communities, creating demand for new schools; and an influx of immigrants into urban areas has created a need for new schools in the nation's cities. These statistics indicate that school boards throughout the country are grappling with issues related to school construction. Just as the reasons behind the demand for new schools are varied, so are the solutions that districts must find in order to provide the necessary facilities.

PROTOTYPE DESIGN, MANSFIELD (TEXAS) INDEPENDENT SCHOOL DISTRICT

Building toward your educational goals

School districts faced with building new facilities have a variety of options and choices, including whether to construct site-specific or prototype school buildings. A site-specific school is a unique building designed for a specific location and to meet the needs of a particular community. A prototype school consists of a building design that is approved according to a district's current standards and specifications, and then constructed in multiple locations. Because it is "pre-designed," with similar up-front costs as a site-specific building, the prototype theoretically can save money and staff time during construction of subsequent buildings.

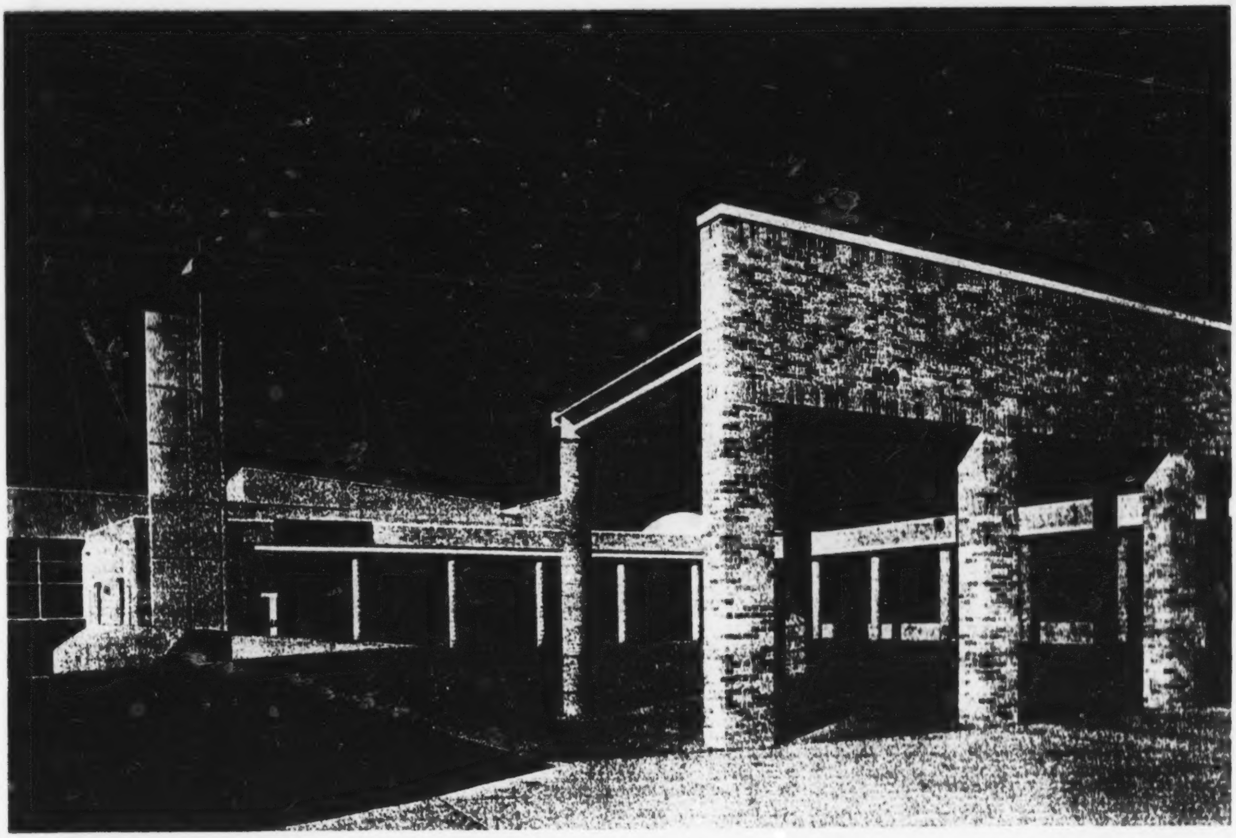
The decision to build a site-specific or prototype school is not a simple choice of one model over the other, however. By understanding the benefits and disadvantages of each, as well as the specific needs of the individual district, a school board can make an informed decision and provide the best possible facilities for its students. Districts must remember that there are no simple answers to the prototype or site-specific question and no single school design is suitable for the needs of every school district.

In fact, many major decisions must be addressed before a district begins building new schools. Questions to resolve before implementing a building program include:

- How will technology be integrated into the curriculum? Will there be computers in each classroom? Will there be computer labs?
- What is the district's teaching methodology? Is it open classroom, the Montessori method, project-based learning or team teaching? Does it depend on the school? Who decides on the methodology and how often does it change?
- Will there be a separate auditorium, gymnasium, and cafeteria or will these be combined?
- How much office space is needed? What about teacher work areas and lounges?
- What is the function of the school within the broader community? Will the school serve as a community center or offer adult educational opportunities?

It is undesirable to design a school building, whether prototype or site-specific, without resolving these and other issues first. Districts must take the time and make the effort to thoroughly develop their education specifications (ed specs) prior to implementing a building program. This ensures that building design decisions reflect the goals and objectives of the district.

It is beneficial for districts to bring their architects into the ed spec development process at the beginning. The architect can provide invaluable information about the design and cost consequences of the various facility alternatives presented. With this input, the district understands the economic feasibility of its decision before it is



Site-Specific design, Louise Wolff Kahn School, Dallas, Texas (above and below)

locked into any one particular choice. The architect also can take a lead role in helping a district forge community consensus for the ed spec and for its choice in building design.

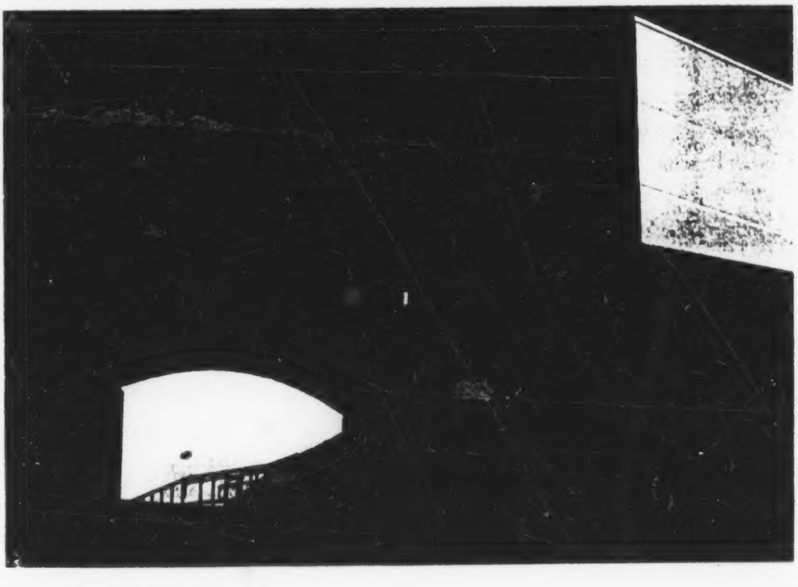
The benefits of prototypes

Once the ed specs are established, a district is ready to address the issue of what type of facilities to build. Prototypes can offer a number of benefits to a school district. District staff members go through the complete design process once with the initial prototype building. This reduces the amount of time they must spend during development of each subsequent building, shortening the design/construction lead times on the successive buildings in a series.

Because it must fit onto any site available, a prototype design is generally simpler than a site-specific design. This often results in lower up-front design costs, along with potentially reduced costs of maintenance, because the building layout, materials, and equipment are standardized. Another advantage is design consistency, which is a priority for some districts.

A flexible prototype for a suburban district

Dallas-based Brown Reynolds Watford Architects, Inc. (BRW) created a prototype elementary school for the rapidly growing Mansfield Independent School District, which serves a suburban community in North Texas, between Dallas and Fort Worth. Working with a community team, BRW developed a flexible design that meets the district's current needs and also will provide expansion options in the future. The $4.9 million prototype features a simple square organizational concept that distinguishes the instructional wing from the administrative and public areas. The layout provides a common multipurpose courtyard that allows light into the classrooms. In addition, it is possible for the



Prototype or Site-Specific?

How can your district weigh the choice between prototype and site-specific school design? The chart below lists the advantages of each approach and leaves a space for you to assign a value of 0 to 10 for the relative importance of each factor in your district, with 0 as the lowest and 10 as the highest. Once you have assigned a ranking to each factor, add the totals for the two columns. Although these rankings are meant to serve merely as a basis for further discussion, the higher score should highlight the option that appears to be the best solution.

PROTOTYPE DESIGN		**SITE-SPECIFIC DESIGN**	
ADVANTAGES/FACTORS TO CONSIDER	**RELATIVE IMPORTANCE (0–10)**	**ADVANTAGES/FACTORS TO CONSIDER**	**RELATIVE IMPORTANCE (0–10)**
Suburban/rural district		Urban district	
Two-year or shorter construction time frame		Three-year or longer construction time frame	
Less cultural diversity throughout district		Greater cultural diversity throughout district	
Design consistency		Unique neighborhood identity	
Multiple building programs		Infrequent construction	
Reasonable land costs		Higher land costs	
Large property parcels readily available		Large property parcels not readily available	
Less frequent changes in teaching methodologies		Frequent changes in teaching methodologies	
Less interest in testing latest educational or teaching innovations		More interest in testing latest educational or teaching innovations	

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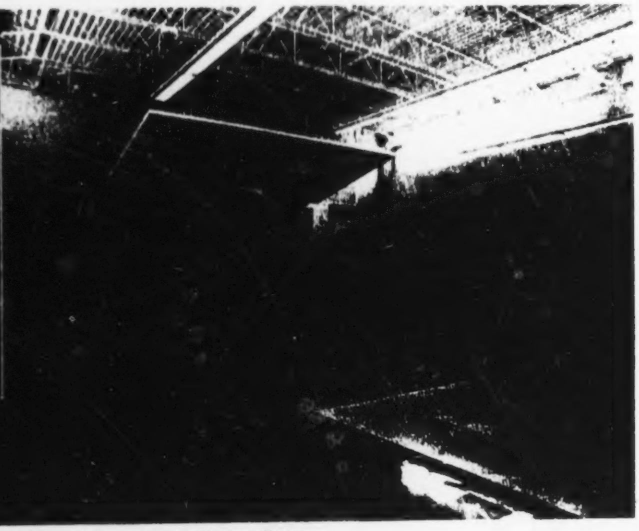
Interior, Louise Wolff Kahn School



Interior, Mansfield (Texas) Independent School District

administrative and public areas to be operational at any time without opening the entire school.

The prototype plan was adapted to two initial sites and both schools were built simultaneously. The simplicity of the building plan allowed for similar site organization at each location. Unique brick colors and patterns and site conditions help distinguish each school. Because the district brought the architectural team into the prototype development process at an early stage, BRW had specific knowledge about differences in soil conditions and configurations at the two sites. This information impacted design choices and enabled BRW to devise a better, more flexible prototype.

The Willie Brown and D. P. Morris elementary schools are both state-of-the-art facilities. They are equipped with computer workstations in each classroom, two computer labs, recreational facilities, a variety of instruction and learning spaces, as well as public gathering and performance areas.

The district saved roughly 15 percent to 20 percent in professional service and 5 percent to 8 percent in construction costs by using a prototype and by constructing the two buildings at the same time. The prototype savings would not have been reduced even if Mansfield ISD had waited six months or longer to begin building the second school.

When one size doesn't fit all

While the prototype model offers many advantages, they are relative, depending on each district's specific educational goals and circumstances. A variety of factors may disqualify a prototype program for a district.

Although prototypes can usually cut design costs after the first building, it is still necessary to adapt the school to each new site. Depending on the location and the design, a prototype may cost more if it must be located on a site for which it is not suitable. For this reason, prototypes limit a district's flexibility in selecting school sites. If the district wants a prototype that is flexible enough to adapt to widely varying sites, the final construction costs may be significantly higher.

A prototype provides less neighborhood pride and recognition for a building because it is not distinct from neighboring facilities. Furthermore, in districts with a wide degree of cultural diversity, a prototype that works in one part of the district may not be suitable for another neighborhood.

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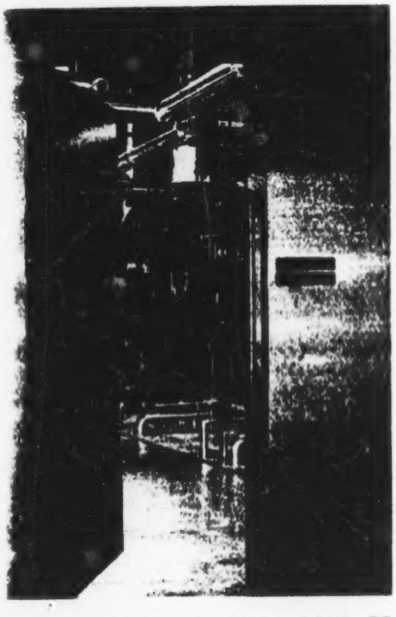

Prototypes also pose the risk of repeating any built-in design problems that cannot be rectified. Moreover, a prototype that cannot easily adapt to change makes it much harder for districts to update teaching methodology or their technology capabilities.

Finally, some districts simply cannot refrain from revising a prototype design, defeating the original cost-saving purpose of developing a prototype.

Advantages of site-specific design

Site-specific school designs also offer distinct advantages. This approach helps maximize the benefits of a particular property because the school is designed with the unique topography of the land and the character of the surrounding neighborhood in mind. Site-specific designs provide more flexibility for districts to choose and take advantage of less-than-ideal locations that may be more affordable to purchase.

A newly designed school is able to incorporate innovations in teaching philosophy, along with the current needs of the community in which the school is located. Site-specific construction also permits a district to test the latest educational and building design concepts without committing to constructing a series of schools that may not be feasible.

Many districts value the individuality of their schools and this objective is easier to achieve with site-specific designs. Furthermore, unique buildings can help foster a sense of community identity and pride.

A site-specific school builds community pride

All of these advantages are evident with the design, planning, and construction of the Louise Wolff Kahn Elementary School in the Dallas Independent School District (ISD). Completed in 1997, this $7.4 million school became a catalyst for uniting an inner-city neighborhood and has helped create a sense of purpose and pride in the area.

BRW worked with a diverse community team including parents, faculty, neighbors, city and school officials, local arts leaders, and the Louise Wolff Kahn Foundation. Together, they designed a facility that serves the needs of the students and the surrounding community alike. A public plaza, an outdoor terrace, a performance hall, and a natural amphitheater built into the dramatic sloping site are all factors that contribute to the building's role as a public place and an educational facility.

Site-specific design made it possible not only to take full advantage of the site's unique topography, but the vision of the school's namesake as well. The Kahn Foundation, established to support arts and education in Dallas, provided input and funding for the school. The performance spaces, music room, and studio for visual arts are components of the school that reflect the emphasis on culture and education that is an integral part of the design.

Site-specific designs create challenges

Site-specific designs present their own challenges and problems. The design effort and construction will consume large amounts of staff time for each school. This can be a serious problem if the district is undertaking an extensive, multiple-building program.

Constructing individual buildings does not allow for cost savings through economies of scale either. Maintenance and security issues also are different at each location, making these tasks more complicated.

Some of the problems with site-specific design can be alleviated with a hybrid approach. For example, the Dallas ISD recently opened 14 new elementary schools. The district incorporated the same ed specs for classroom technology into each of these site-specific schools. As a result, each of these buildings is different in its overall design and is constructed to suit the individual context of its site. However, each facility's technology is designed and built to identical standards.

This hybrid concept can be applied to more than the use of science or technology. A district that builds multiple site-specific schools can develop same-standard component models for auditoriums, cafeterias, office space, gymnasiums, and more. By incorporating these standardized building design components in ways that are unique to each school location, a district can have the benefits of site-specific and a prototype at once.

Making a choice

Deciding whether a prototype or a site-specific design would be more suitable for a district can be a difficult question. BRW has had experiences with both approaches, prompting us to devise some guidelines.

These guidelines are summarized in the chart on page 20, which districts can use to analyze their educational priorities and determine which option might be best. In general, however, BRW has found that prototypes are best suited for suburban and rural districts that have open land available at a reasonable cost. In contrast, site-specific designs often work best for urban districts where land is at a premium and is often unavailable in the multiple-acre parcels needed for an elementary school.

The construction time frame is another factor to consider. It is not reasonable for a district that builds one school every four or five years to use a prototype. There will be too many changes in the ed spec during that time for the prototype design to remain suitable. Fast-growing districts challenged with constructing multiple schools within a period of two years or shorter, however, often find that a prototype serves them best.

Most important, selecting a prototype versus a site-specific school design involves more than bricks and mortar. Districts that want the best possible results must examine their educational values, beliefs, and priorities and make the choice accordingly. Whichever option a district chooses, the buildings that result are a picture of the district's goals and objectives when it made critical decisions.

This examination represents the opportunity inherent in the issue of prototype versus site-specific design. The ed spec process is actually never-ending for any district, even ones that are not engaged in school construction. Districts are rewarded if they involve all of their constituencies and the architects in developing their ed specs, and take the time to give all of the issues complete and thoughtful consideration. These districts will design and construct school buildings that support their unique educational goals and provide enhanced and lasting service to the community. ■

Craig Reynolds, AIA, *is a principal with Dallas-based Brown Reynolds Watford Architects.* **Lisa W. Lamkin, AIA, CSI**, *is a senior associate for Brown Reynolds Watford Architects.*

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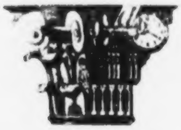

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Principal-in-Charge/Project Architect

Martha Chapman, IIDA
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Current building capacity
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Current building area
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Total project costs
$10.6 million

Cost per square foot
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Space per student
150 square feet

Cost per student
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Completion date
July 1998

Anderson Mill Elementary School
Spartanburg, South Carolina

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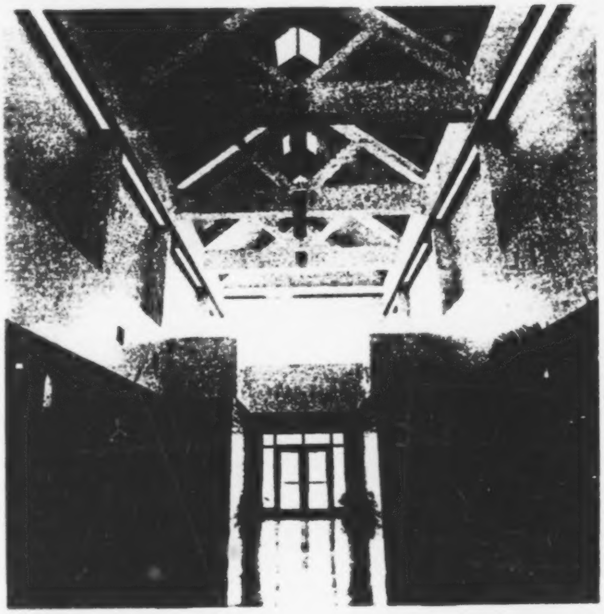
Spartanburg County School District Six has seen unprecedented growth in recent years. To keep up with the expanding enrollment, the architect was challenged to design a new elementary school incorporating the latest in technologies while respecting the heritage and history of the local area and its neighbor, the Anderson Grist Mill.

Visitors to the new school enter through the gallery, reminiscent of the original mill and serving as a backdrop for historical artifacts to be gathered from the community in the coming years. The Media center incorporates a 25-station computer lab and a TV studio for broadcast of in-school programs. The gym, theater, and cafeteria are located off a shared lobby depicting a main street theme using streetlights and neon lighting. This area is secured from the remainder of the building for after-hours programs.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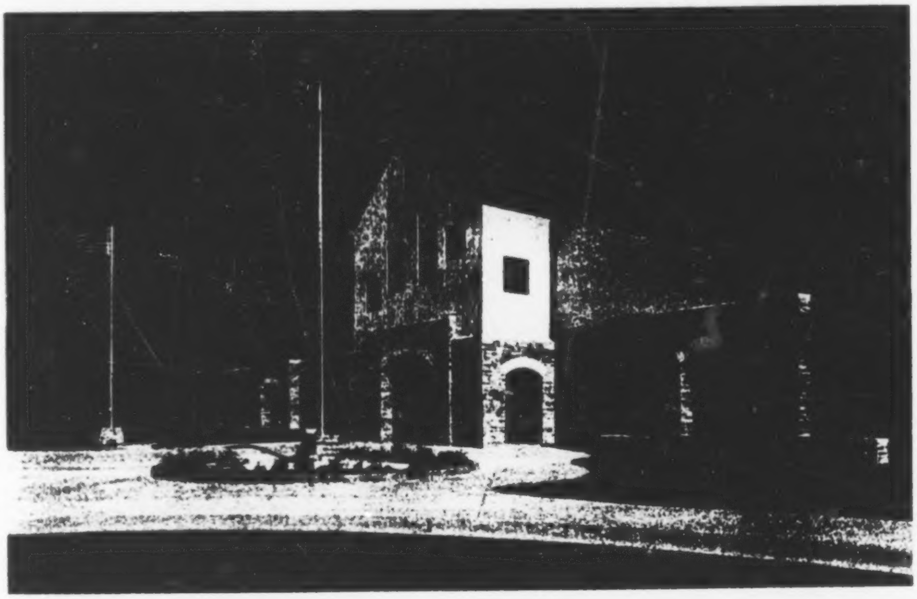
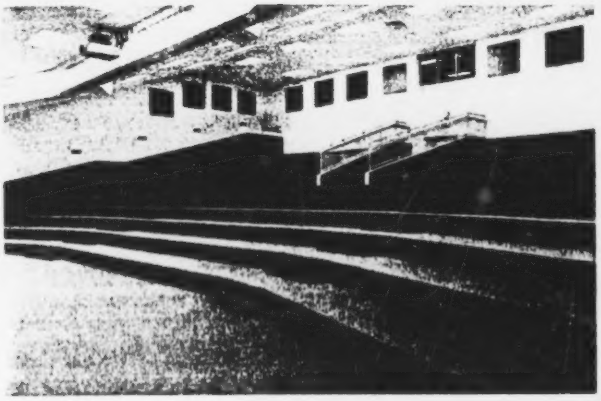
ENTRY LOBBY

The classrooms are located in two central wings, minimizing the walking distance to core areas. Each classroom is designed to accommodate a


EXTERIOR



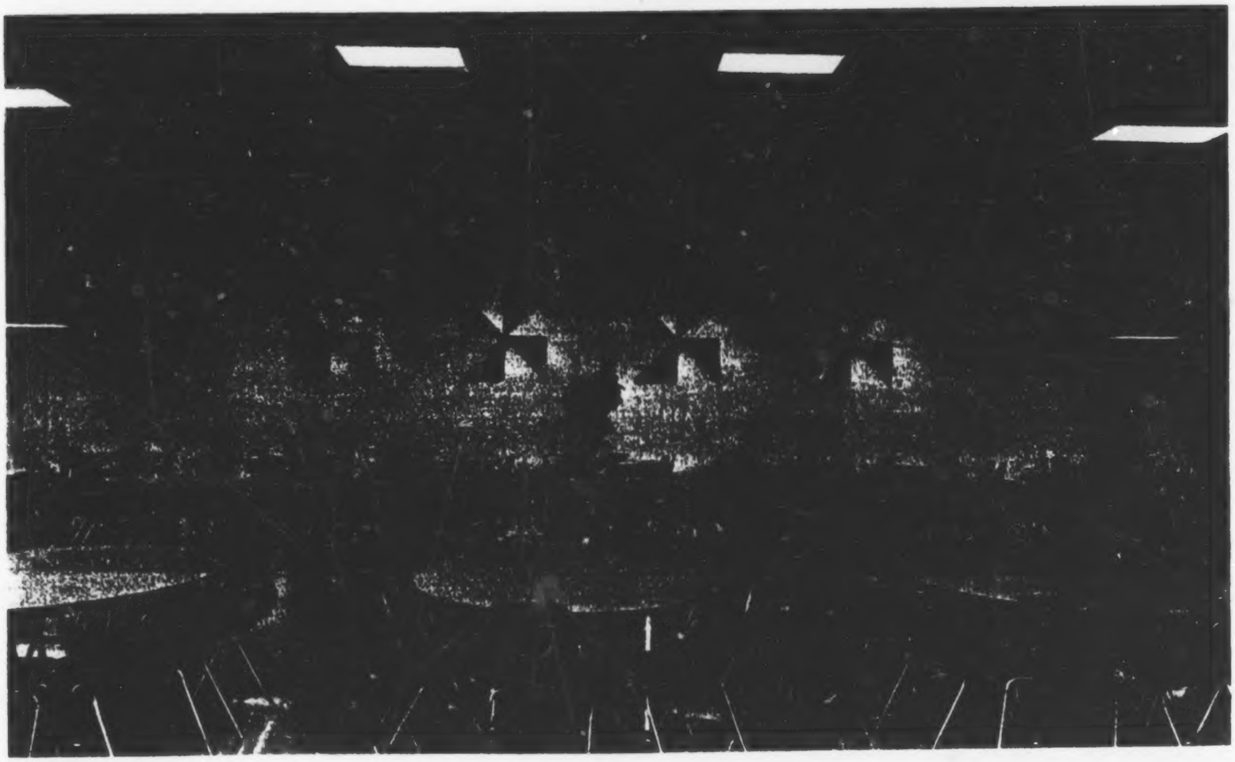
Auditorium

teacher's computer and six student computers all networked through fiber-optic cables with access to the Internet. Classrooms are also equipped with telephones providing communication between all areas of the school and allowing control of a centrally located media retrieval system. The theater is equipped with a production sound system and video projection system to view the latest multimedia presentation.

Just as water was the source of energy for the original mill, water flowing through 12 miles of underground pipe supplies the energy for the "geothermal heat pump system." This facility is the largest school in the state heated and cooled by a geothermal system.

By integrating the latest technology, Anderson Mill is preparing students for the next century. By embracing the local history, students learn °to value their heritage. By respecting the environment, students learn to preserve the natural resources for future generations. ■

Office



Cafeteria

551

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

The Orcutt/Winslow Partnership

1130 N. Second Street
Phoenix, AZ 85004
Web site: www.owp.com

Herman L. Orcutt, AIA
(602) 257-1764

Design team

Herman L. Orcutt, AIA
Partner-in-Charge

Katy James
Associate/Team Leader

Paolo Sanza
Project Manager/Designer

Vispi Karanjia
John Westfall
Lara Serbin
Doug Pahls
Team Members

Paul Berg
Interior Design

Client

Balsz School District
(602) 275-4457

Grade span
K-8

Current building capacity
900

Current building area
104,000 square feet

Building area before
addition/renovation
72,695 square feet

Total project costs
$5.7 million

Cost per square foot
$55

Space per student
116 square feet

Cost per student
$6,333

Completion date
December 1997

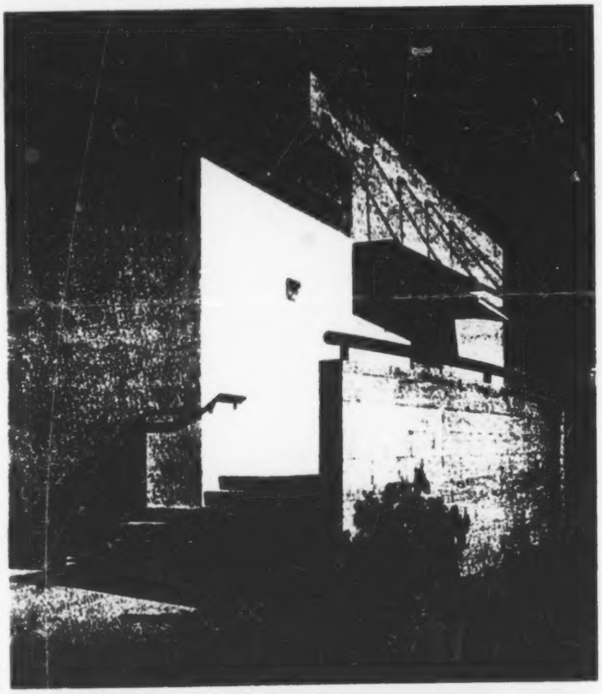
Balsz Elementary School Phoenix, Arizona

The Orcutt/Winslow Partnership

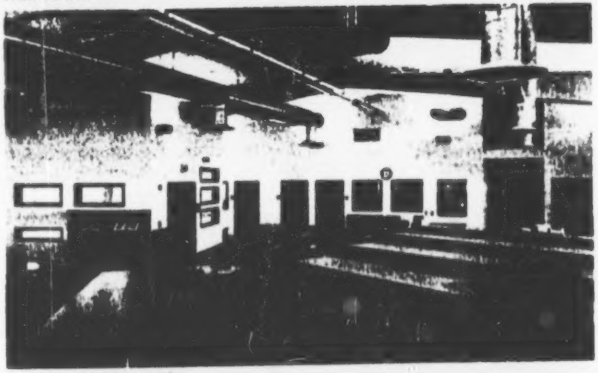
With the discovery of Native American remains on the grounds of this urban campus, the expansion/renovation project at Balsz Elementary School took on a unique architectural approach. The concept grew from a hardscape designed to mimic the archeological interpretations of the site and resulted in a unifying of the old and the new.

Today, the campus consists of 12 buildings, four of which were newly constructed. Existing classroom layouts were maintained and expanded. The old cafeteria building became home to the new library, and a free-standing kindergarten building was added. The newly built cafeteria/auditorium, designed to also serve as a venue for public events, increased access via a new west entrance.

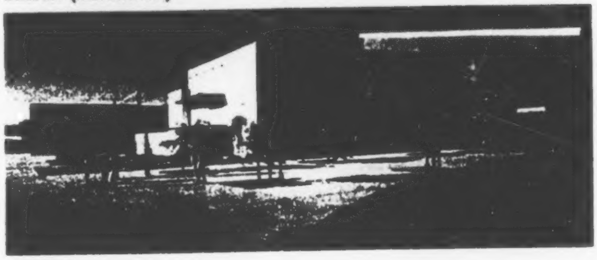
Extreme care was taken in creating transitions between the old and new. Various materials, ranging from cast-in-place concrete to steel construction and stucco, were used to meet this challenge. Within the classrooms, colors that would stimulate students, create pleasant environments, and unify spaces were selected. These same colors are found throughout the campus and serve to unite the exterior and interior spaces. ■


© 1998 Al Payne

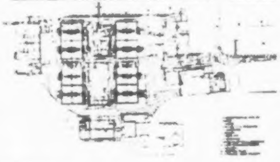
New addition



Library (renovation)



Exterior



Site plan

ELEMENTARY SCHOOLS
PROJECT IN PROGRESS

Sverdrup Facilities, Inc.

1300 Wilson Blvd., Suite 500
Arlington, VA 22209
Web site: www.sverdrup.com

Edwin Schmidt
(703) 351-4269

Design team

Edwin Schmidt
Principal-in-Charge

Brent Byers
Design Principal

Maureen Shelton
Project Manager

Gary Watson
Project Manager

HMFH Architects
Design Associate

Steve Friedlander
Principal-in-Charge

Kelso & Easter
Local Associate Architect

Robert Easter
Principal-in-Charge

Client

Richmond Public School System
(804) 780-7700

Grade span
Pre-K-5

Current building capacity
550 each building

Current building area
70,500 square feet

Total project costs
$32 million

Cost per square foot
$105

Space per student
118 square feet

Cost per student
$13,147

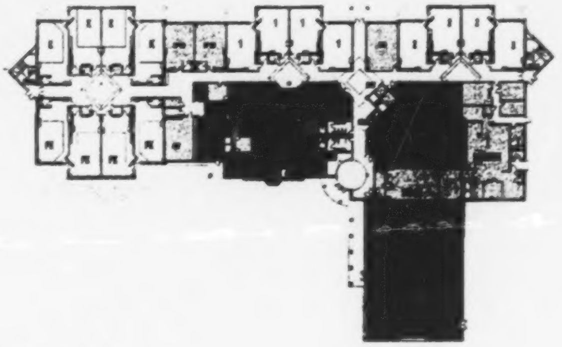
Completion date
August 1999

Blackwell, Jones & Holton Elementary Schools Richmond, Virginia

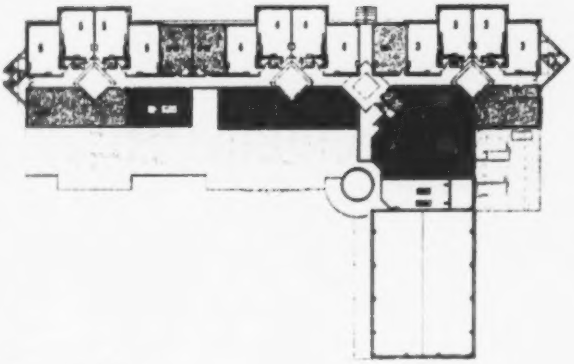
Sverdrup Facilities, Inc.

After evaluating an aging school system, the city of Richmond decided to develop a modern prototype for constructing three new elementary schools in three distinct communities around the city. The prototype design will include elements of flexibility, technology, and community, while also setting the standards for a revitalization of the district's physical plant. The new schools will initially enroll 550 students and will have expansion capabilities in the design.

The challenges that this program presented to the team included building community support, maximizing limited resources, and working within a tight design and construction schedule. Sverdrup assisted the school district in conducting a three-month community building and information gathering effort with parents, faculty, and students to actively involve each group in development of the prototype without compromising the aesthetics of the neighborhood. The physical plant services staff was involved throughout the design process to ensure incorporation of standardized building systems and efficient building maintenance practices.



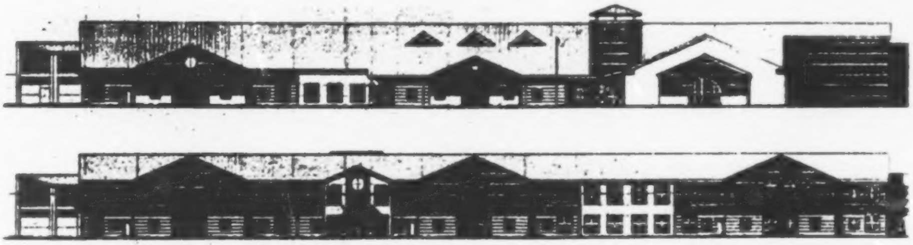
First floor plan



Second floor plan

The prototype solution, coupled with intensive community involvement, has produced a neighborhood school that works effectively within the community as well as the school district's overall master plan. The three projects were bid as one program, which was awarded to one contractor.

After 23 years without new elementary school construction, the city of Richmond has taken a bold step forward to modernize the district's entire physical plant. The three new schools will serve as a benchmark for quality in a newly established educational environment. Estimated completion of construction is 14 months. ■



Exterior renderings

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ELEMENTARY SCHOOLS
NEW CONSTRUCTION

The Stubenrauch Architects, Inc.

708 Erie Ave.
Sheboygan, WI 53081

James Sutton
(920) 458-3526

Design team

Paul Dinkins
Principal-in-Charge

Jim Beard
Project Manager

Bob Heimerl
Project Designer

Gary Ledbetter
Project Coordinator

Jennifer Schommer
Interior Designer

Client

School District of Cambridge
(608) 423-4345

Grade span
Pre-K-5

Current building capacity
750

Current building area
111,850 square feet

Total project costs
$8 million

Cost per square foot
$72

Space per student
149 square feet

Cost per student
$10,729

Completion date
March 1998

SITE PLAN

Cambridge Elementary School and Community Pool Cambridge, Wisconsin

The Stubenrauch Architects, Inc.

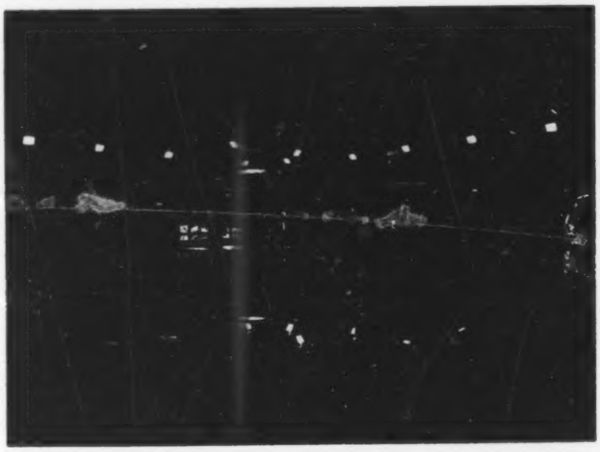
Cambridge Elementary School is the result of a district-wide master plan that addresses the school district's growth and facility needs for the next 20 years. Several building options were considered, and the decision was made to build a new elementary school to serve the needs of both students and the community.

Core areas of the Pre-K-5 school are designed to accommodate future classroom additions in a cost-effective manner. The compact plan minimizes exterior wall space and creates an energy-efficient design while allowing windows in all classrooms.

The instructional media center (IMC) is the center of the academic area and close to all classrooms. Clerestory windows give this area a spacious feeling. An adjoining large-group instruction area is tiered for viewing of videos and for student presentations.

Community interaction and support for the school are substantial. A community swimming pool, gymnasium with stage, and multipurpose area provide a facility that is regularly used throughout the year. The design and placement of these spaces allow for their separation from academic areas.

The school is constructed of load-bearing masonry walls and steel joint roof structure. The exterior is a combination of brick, split-face block, and exterior insulation finish system that reflect the vernacular architecture of the Cambridge area. Linear canopies on both sides of the main entrance offer student protection in the bus pickup area. ■



POOL

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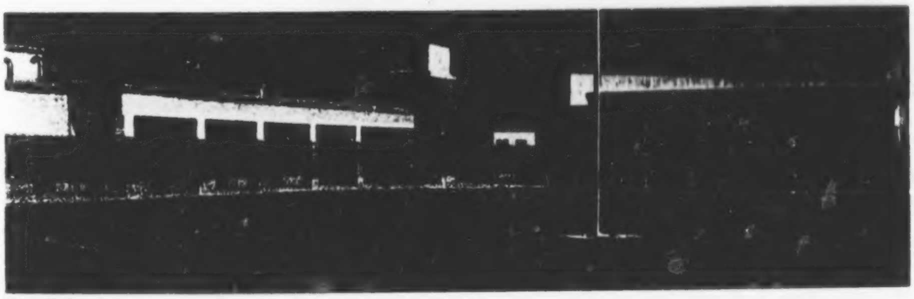
LIBRARY



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Spragins & Hinshaw Architects, Inc.

1100 N. Beeline Highway, Suite A
Payson, AZ 85541

Gary Spragins
(520) 474-3630

Design team

Rex Hinshaw
Principal Architect

Robert O'Brien
Project Manager

Robinson Engineering
Mechanical

Wright Engineering
Electrical

Crane Engineering
Structural

Client

Whiteriver Unified School District
(520) 338-4842

Grade span
K-5

Current building capacity
300

Current building area
34,000 square feet

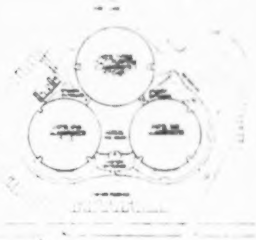
Total project costs
$2.69 million

Cost per square foot
$79

Space per student
113 square feet

Cost per student
$8,953

Completion date
October 1997



SITE PLAN

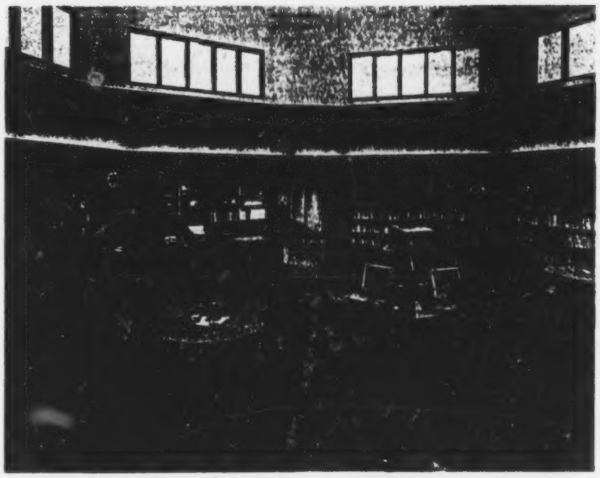
Cradleboard Elementary School Whiteriver, Arizona

Spragins & Hinshaw Architects, Inc.

All 300 kindergarten through grade 5 students at Cradleboard Elementary School in Whiteriver, Ariz., will remember the unusual construction of the new monolithic dome school.

The 34,000-square-foot, three-dome facility is interconnected by a conventionally constructed center support facility. Two domes are classrooms with central core areas; the third dome is an activity center housing a cafeteria, gymnasium, recreational area, and classrooms for art and music. Windows in each classroom allow natural light from eight-foot skylights in each dome.

The domes are constructed from heavy vinyl colored airforms, air-inflated and sprayed with urethane and concrete on the interior. This created a fire-proof, disaster-proof, insulated, frameless, economical monolithic space.



LIBRARY

Cost of constructing the dome structures averaged $29 per square feet. At completion, the average increased to $79 per square feet, which, in the Arizona school marketplace, is considerably below the average school cost. The initial cost savings, while substantial, do not compare with the tremendous operating and maintenance cost savings to the school district.

The school principal and teachers discovered that the domes provide interesting and creative learning places. As an example, one ingenious idea was to develop a planetarium on a curved surface, and the pie-shaped classrooms form functional, non-traditional spaces. The three-dome school site is nestled in Ponderosa Pines at an elevation of 7,000 feet on the Apache reservation in Arizona's mountain country. The forms, colors, and functional application of the monolithic domes naturally integrate with traditional Apache culture, while attending the requirements of contemporary school design. The school is an exemplary model of schools for the future. ■

EXTERIOR

EXTERIOR

ELEMENTARY SCHOOLS
PROJECT IN PROGRESS

Davis County School District Prototype Elementary Schools (4 sites) Davis County, Utah

Valentiner Crane Brunjes Onyon Architects

Valentiner Crane Brunjes Onyon Architects
524 South 600 East
Salt Lake City, UT 84102
Web site: www.valentiner.com
Steve Crane, AIA
(801) 575-8800

Design team

Steve Crane, AIA
Principal-in-Charge

Boyd McAllister, AIA
Project Manager

Jeanne Jackson, AIA
Project Architect

Client

Davis County School District
(801) 451-1251
Gary Payne, AIA
Administrator of Facilities Management and Planning

Grade span
K-6

Current building capacity
900 in session/1,200 year-round

Current building area
72,000 square feet

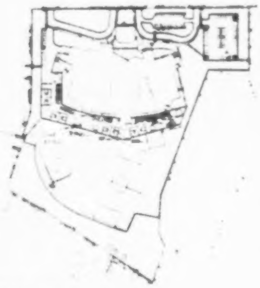
Total project costs
$6.86 million

Cost per square foot
$95

Space per student
80 square feet

Cost per student
$5,716

Completion date
June 1999

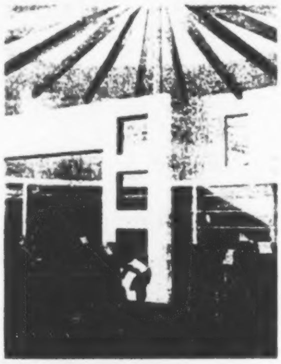


SITE PLAN

"We want a fresh new approach. Utilize your past experience as a resource to help ensure the facility will meet today's and future curriculum needs. Our goal in designing a new prototype elementary school is to create a facility that is responsive to this generation's children."—Gary Payne, Administrator of Facilities & Planning, Davis School District.

This was the directive given Valentiner Crane Architects for four new prototype elementary schools in the Davis School District. A building committee consisting of teachers, administrators, maintenance personnel, and students worked with the design team to propose the educational specifications for the new school.

The new design responds to the committee directives by not placing "kids on grids" in a typical "egg crate" corridor. The classrooms are divided into small groups to create learning academies with a central activity space. Computer technology, science programs, and art activities take place in the shared space. Teachers' desks are removed from the classrooms and placed in a joint centralized location. The teachers' prep room/office facilitates collaboration and is directly accessible to the activity room, with windows to enhance supervision.



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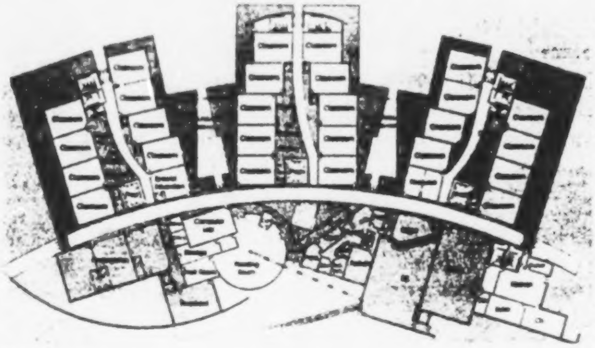

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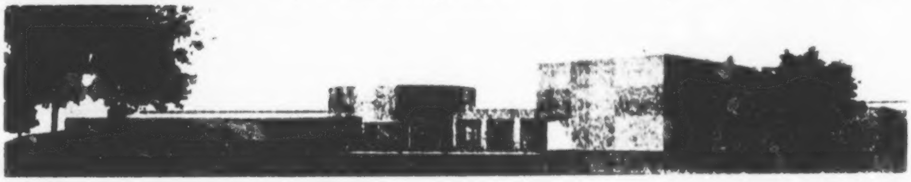
FLOOR PLAN

Other issues incorporated into the unique design include:

1. Site Access/Supervision
   - Separate bus and automobile traffic
   - Easily supervised playground
2. Outdoor Classrooms
   - Use building scale, textures, and details as instructional tools
   - Encourage multi-curriculum strategies
3. Entrance/Image
   - Design the community can take pride in
   - Energetic, playful, exciting
4. Comfortable Scale
   - Smaller, more personal spaces
   - Encourages teacher/children interaction
   - Complements and relates to surrounding neighborhood
5. Media Center
   - Open, visible, interactive learning environment
   - Bridges technology with basic learning
6. Classrooms
   - Create a learning environment
   - Flexible layout, no "kids on grids"
   - Computers in every room
   - Large- and small-group study areas
   - Special instruction spaces for art and science ■



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

CBSA Architects

226 Second Street, NW
Hickory, NC 28601

Ernie Sills
(828) 322-3403

Design team

Robert Smith
Principal Architect

James Stumbo
Architect

Client

Caldwell County Schools
(828) 728-8407

Grade span
Pre-K-5

Current building capacity
400

Current building area
60,798 square feet

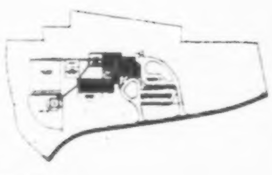
Total project costs
$3.93 million

Cost per square foot
$64

Space per student
151 square feet

Cost per student
$9,664

Completion date
December 1995



SITE PLAN

Dudley Shoals Elementary School Granite Falls, North Carolina

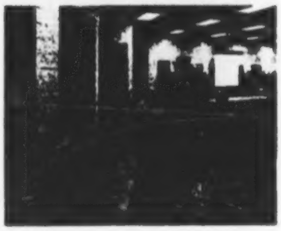
CBSA Architects

Due to rapidly changing demographics in the locality to be served by this new elementary school, the primary design directive was to incorporate as much flexibility as possible for the transforming and growing student population. In order to do this the building's "core" facilities were designed to support the maximum number of students, which was 600. These areas include the administrative office space, cafeteria, kitchen, media center, and multipurpose room (gymnasium).

Three separate classroom wings were designed to include grade-level groupings. Only enough classrooms were originally built to accommodate initial enrollment numbers of 375 students. Each wing, however, was designed to be easily added onto for future growth.

All standard classrooms were designed large enough so that they could be used for any grade level. Pre-kindergarten, kindergarten, and first-grade rooms are designed to be interchangeably used if necessary. The resource classrooms were designed with a removable partition to allow two resource classrooms to be combined into one full-sized standard classroom. The special purpose classrooms for art, music, and science were also designed to be converted for regular classroom use if necessary.

CORRIDOR



LIBRARY

All of these features have already proved useful in that eight classrooms were recently added to the original building, and resource classrooms have been converted back and forth for two consecutive years. Special purpose rooms have also needed to be used as regular classrooms.

Other design features incorporated in this facility include corridors that allow children to be able to see an outside exit from any position; a circulation arrangement to allow for community use of the media center, cafeteria, and multipurpose room; and bus and vehicular traffic that require minimal school personnel for supervision.

The project incorporated several construction cost-saving features that resulted in a building that was constructed within the budget and was completed on time. ■

EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Dull Olson Weekes Architects

319 SW Washington, Suite 200
Portland, OR 97204-2159
Web site: www.dowa.com

Norman Dull
(503) 226-6950

Design team

Norman Dull
Principal-in-Charge

Steve Alexander
Project Manager

Client

Beaverton School District
(503) 591-8000

Grade span
K-5

Current building capacity
725

Current building area
70,475 square feet

Total project costs
$7.3 million

Cost per square foot
$104

Space per student
97 square feet

Cost per student
$10,062

Completion date
August 1997

Findley Elementary School Beaverton, Oregon

Dull Olson Weekes Architects

The scale and character of this K-5 elementary school are responsive to the site's surrounding residential development. The front of the building's low profile with the central tower help to highlight the main entrance, blend in with the residential neighborhood, and minimize the impact of the structure.

The program requires 28 classrooms on two levels, organized around the core facilities of an instruction media center (IMC), gymnasium/cafetorium, and administration. The six learning pods are arranged with central access to common areas and surrounding the IMC. The 3,800-square-foot IMC is the central focus of the school. It is a unique triangular space punctuated by a curved stairway and steel columns that extend through two levels. Continuous clerestory windows provide plenty of natural light. It features a secluded nook for reading and storytelling.

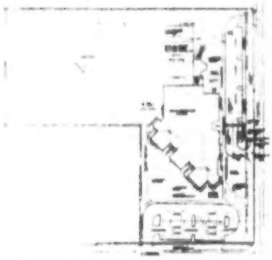
EXTERIOR

INTERIOR

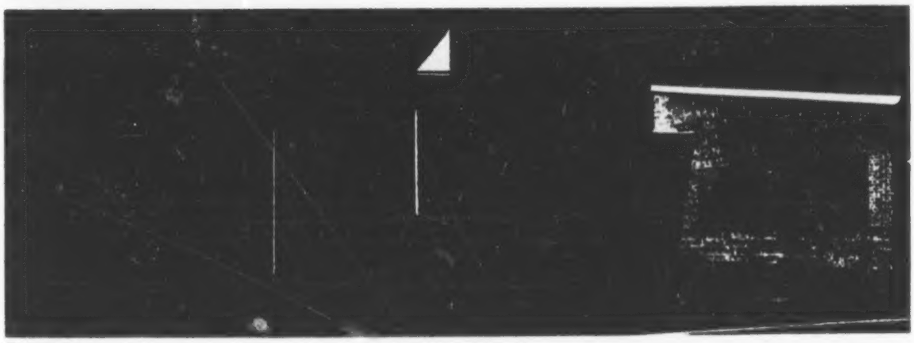
Features include:

- Instructional areas surround both levels of the trapezoidal-shaped IMC.
- Clerestory windows provide natural light throughout the interior spaces.
- Administration, cafetorium, and gym offer separate evening access.
- Opportunities for community use in evenings.
- Gym and cafeteria/auditorium.
- Educational space includes 28 classrooms.
- Groups of six classrooms share a commons area.
- Common areas and classrooms have the flexibility of teaching in large or small groups.
- Common areas are daylighted.
- Outdoor play area offers covered play areas, play fields, and safety for school children.

The interior of the school includes numerous provisions for natural lighting and open views, including abundant clerestory lighting and large floor-to-ceiling window bays in the classroom pods. The school incorporates wood and steel structural framing. Exterior walls are masonry veneer and siding with aluminum framed windows. State-of-the-art electronic controls are combined with a variable air volume, air-handling system. ■



SITE PLAN



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Legat Architects, Inc.

24 N. Chapel Street
Waukegan, IL 60085
Web site: www.legat.com

Ted Haug, AIA
(847) 662-3535

Design team

Ted Haug, AIA
Project Manger/Designer

Brian Scheuzger
Project Architect

Sanjav Singhal
Project Manager/Interior Designer

Amanda Roberts
Angela Carbol
Derek Dunn
Shannon Babski
Ramu Ramachandran
Team

Client

Fremont School District 79
(847) 566-0169

Grade span
K-3

Current building capacity
700

Current building area
86,000 square feet

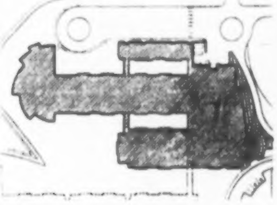
Total project costs
$10.3 million

Cost per square foot
$120

Space per student
123 square feet

Cost per student
$14,730

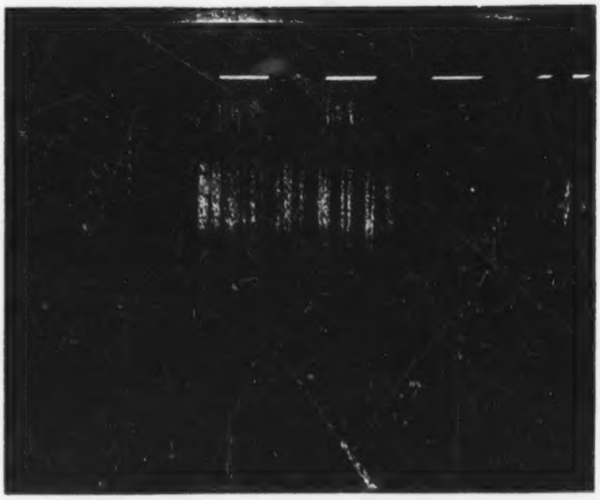
Completion date
August 1998



SITE PLAN

Fremont Elementary School
Mundelein, Illinois

Legat Architects, Inc.



GYMNASIUM

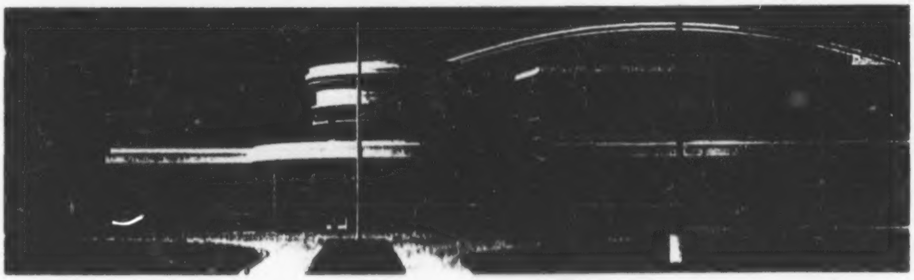
The design for Fremont Elementary School is based on the school district's educational program and the desire to integrate the building with the natural aspects of the site.

The client's program called for the grade levels to be organized in houses, with shared spaces to be grouped adjacent to the classrooms. The core functions were to be designed for flexibility and community use. The resulting plan organizes the grade-level houses along the main east/west corridors, with the shared functions lining the north/south corridors separating the houses. The gymnasium and cafetorium (cafeteria/auditorium) are located toward the front of the site for easy community use, while the media center and arts areas are grouped at the rear of the site to take advantage of expansive views of the woodlands beyond.

The "school in nature" concept is further reinforced by using a sun, moon, and stars motif on all interior finishes and furnishings.

The exterior materials were selected to complement the existing school building across the street. The mechanical system consists of a two-pipe hot/chilled water system feeding unit ventilators in the classrooms and mixing boxes for the common spaces. The entire school is wired to accommodate information technology. ■

INTERIOR



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

David Lynch & Associates

500 Golf Road
Lancaster, PA 17602

Maryann M. Vajda, AIA
(717) 397-7406

Design team

Maryann M. Vajda, AIA
Project Architect

Connie King
Project Manager

Project team

Carl Kowalski
Shirlie O'Leary
Ed Starr

Client

Garnet Valley School District
(610) 558-7368

Grade span
3-5

Current building capacity
750

Current building area
79,400 square feet

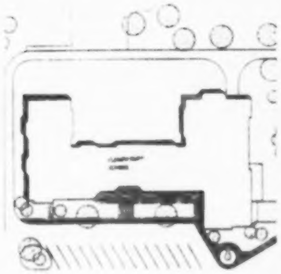
Total project costs
$9 million

Cost per square foot
$113

Space per student
105 square feet

Cost per student
$12,000

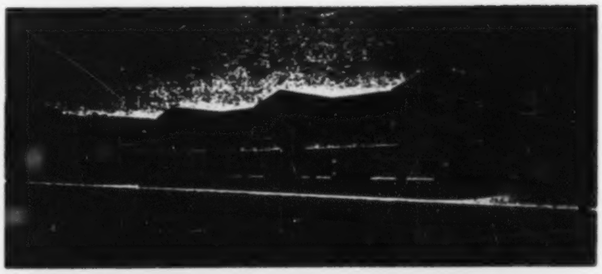
Completion date
August 1997



SITE PLAN

Garnet Valley Elementary School
Glen Mills, Pennsylvania

David Lynch & Associates



EXTERIOR

© JOHN HERR PHOTOGRAPHY

LIBRARY

The school's theme—"GVES—A Caring Community of Learners"—reflects the school's philosophy, which was developed with input from staff, students, parents, and administrators. By definition, a community is a group of individuals who work together, respect each other, and work toward common goals. Our school will help students grow and develop through these important elementary years. Our students will be provided with every opportunity to reach their potential, learn the academic and life skills necessary for the future, and stand tall with pride for their school: Garnet Valley Elementary.

The groundbreaking ceremony for Garnet Valley Elementary School was held on Friday, July 26, 1996. In 13 short months, this modern facility that had been planned for two years became a wonderful reality. The school serves students in grades 3-5 and features many unique aspects, including a little theater/large-group instruction room; computer mini-labs; spacious classrooms with custom-designed cabinetry; a state-of-the-art library; and specially designed instructional areas for art, music, and physical education. Every classroom includes teaching stations for student computers, small-group instruction, and whole-class instruction. The technology plan is met by including four computers, a TV, and a VCR in each instructional space, all networked district-wide. Even the playgrounds were designed to meet the educational needs of the students.

Garnet Valley School District is located in the southeastern edge of Pennsylvania, bordering Wilmington, Delaware, to the south and Philadelphia to the east. The district is seeing an overwhelming amount of growth, but does not want to overburden taxpayers with empty classrooms waiting to be filled. The district's administration carefully follows the housing trends of their local townships to determine the number of students each housing permit will produce. With that information in hand, the district decided to build a new elementary school to house classrooms for 750 students and a core to house 1,000. When the additional students enter the district, the district will need to add only classrooms in a location already planned in the design of the original building. ■

LITTLE THEATER

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

FGM Architects Engineers

1211 W. 22nd Street
Oak Brook, IL 60523
Web site: www.fgm-inc.com

John Ochoa
(630) 574-8300

Design team

John Ochoa
President

Joseph DeSalvo
Director of Production

Bill Hakim
Project Architect

Eric Pawelek
Director of Engineering

Client

Frankfort C.U.S.D. #157C
(815) 469-5922

Grade span
K-3

Current building capacity
460

Current building area
76,529 square feet

Total project costs
$6.12 million

Cost per square foot
$80

Space per student
166 square feet

Cost per student
$13,297

Completion date
August 1996

Grand Prairie Elementary School Frankfort, Illinois

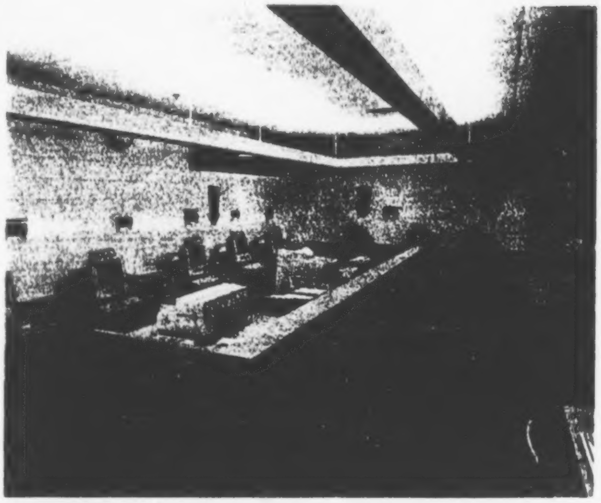
FGM Architects Engineers

This new elementary school results from 3½ years of planning, design, and construction. Frankfort 157.5 passed a building referendum and acquired land that required annexation into the community to provide water/sewer services to the school. Design of the site and school progressed with extensive community participation.

The program called for a K-3 primary center, early childhood development program, and administrative offices for the district. The site was designed to separate bus and parent drop-off areas. Kindergarten rooms are located adjacent to the bus drop-off, with a separate entrance and playground.

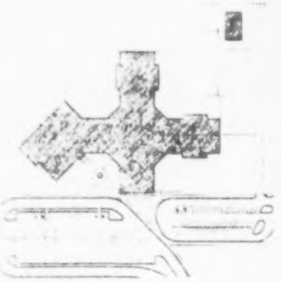
Grade-level classroom wings are clustered around the Enrichment Learning Center (ELC), allowing each grade equal access without disturbing surrounding classes. The ELC is the heart of the building, housing the library, computer lab, reading pit, and project area. The ELC permits several classes to be involved in various activities simultaneously. The computer lab provides students access to the state-of-the-art network.

Unique features of the design include the large multi-purpose areas centered at each grade-level wing and paired classrooms that share a teacher office. Ancillary spaces for special classes have been provided at central locations. Toilet rooms are dispersed for easy access, and after-school areas are well zoned for security. The physical education areas are located adjacent to playfields being constructed by the park district. ■



COMPUTER LAB

CLASSROOM



SITE PLAN

EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

TMP Associates, Inc.
1191 W. Square Lake Road
Bloomfield Hills, MI 48302

Gail A. Allevato
(248) 338-4561

Design team

Larry Morris, AIA
Principal-in-Charge

George Rogers, AIA
Project Manager

Gary Jelin, AIA
Eric Geiser, AIA
Barry Nebhut, AIA
Project Designers

Client

Saline Area Schools
(734) 429-5454

Grade span
Woodland Meadows: 2-4
Heritage: 5-6

Current building capacity
Woodland Meadows: 625
Heritage: 784

Current building area
Woodland Meadows:
72,000 square feet
Heritage: 85,000 square feet

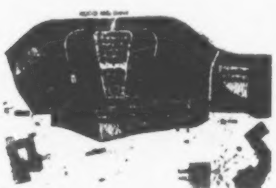
Total project costs
Woodland Meadows: $7.4 million
Heritage: $9.1 million

Cost per square foot
Woodland Meadows: $102
Heritage: $107

Space per student
Woodland Meadows: 115 square feet
Heritage: 108 square feet

Cost per student
Woodland Meadows: $11,840
Heritage: $11,607

Completion date
August 1997



SITE PLAN

Heritage Elementary and Woodland Meadows Elementary Saline, Michigan

TMP Associates, Inc.

A vision of an elementary school campus, comprising grades 2-6, was realized in the construction of Woodland Meadows and Heritage for Saline Area Schools. The theme of the project, "a lighthouse design," suggested that the new educational campus would guide the community's commitment to quality education into the 21st century.

Facing each other across a landscaped plaza, the new elementary buildings were positioned to create a welcoming courtyard for students, parents, and visitors. Automobile traffic and visitor parking are separated from bus routes and staff parking to ensure pedestrian safety.

Although Woodland Meadows and Heritage maintain distinct architectural expressions, similar exterior colors and materials were selected to enhance the campus concept. Because there is a proud heritage of outstanding residences in the city of Saline, the local historical society reviewed the exterior design elements of the projects to promote contextual compatibility.

An appropriate elementary scale was accomplished in both schools using "pods" to house classrooms, in lieu of long double-loaded corridors. Building "core" services, which include the media center, gymnasium, cafeteria, art room, music room, and administrative offices, are centrally located. Classrooms are organized around a "locker commons," and operable partitions are used to encourage team teaching and allow future flexibility. ■

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MEDIA CENTER

CORRIDOR

EXTERIOR

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Lesko Associates, Inc.
Gemini Tower II, 2001 Crocker Road, Suite 200
Cleveland, OH 44145
Web site: www.lesko-associates.com
Nicholas Lesko, FAIA, President
(440) 835-0850

Design team

Nicholas Lesko, FAIA
Project Administrator

Edward G. Lesko, AIA
Design

Robert W. Blatchford, Jr., AIA
David A. Andreano, AIA

Client

Revere Local School District
(330) 659-6111

Grade span	K-3
Current building capacity	822
Current building area	92,503 square feet
Building area before addition/renovation	32,355 square feet
Total project costs	$4.83 million
Cost per square foot	$80
Space per student	120 square feet
Cost per student	$9,668
Completion date	1996

SITE PLAN

Hillcrest Elementary School Richfield, Ohio

Lesko Associates, Inc.

This program called for an addition to an elementary school in a fast-growing community. It's located in a suburban-rural setting that sets high educational standards for the community.

To accommodate the enrollment increase, it was necessary to more than double the area of an existing elementary school with a minimum of disruption. In addition to a classroom wing, an early primary (K-6) wing, a library, cafeteria, kitchen, and gymnasium were constructed, as well as remodeling of the administration area.

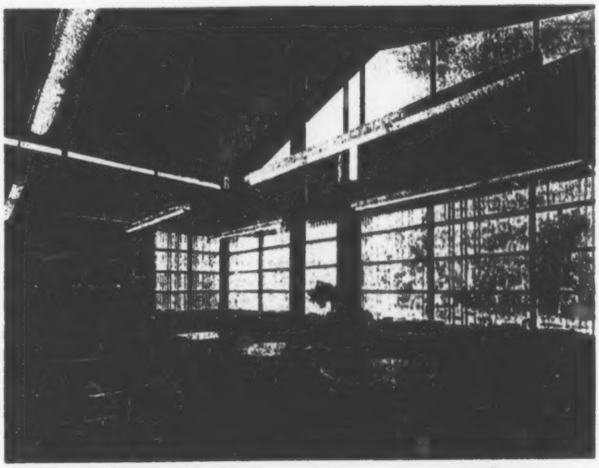
Additions were developed on both sides of the existing classroom wings by extending the main corridor as a circulation spine. This configuration relates to the linear shape of the site and provides a sense of order and rhythm to the relationships between the classrooms and the shared facilities (library, cafeteria, gym, and administration).

Architecturally, the forms and shapes employed in the main façade add interest and movement and bring intimacy to a very "stretched out" building.

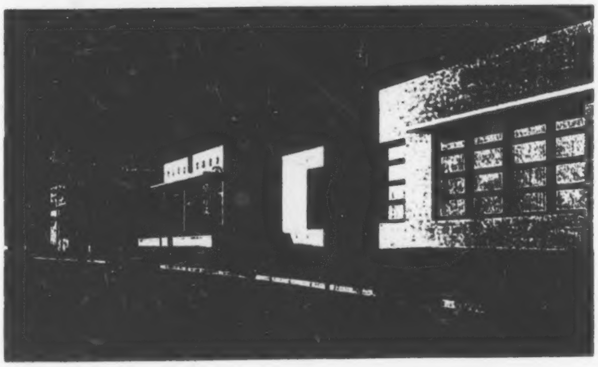
To create exterior harmony the additions are constructed of the same brick as the existing building.

Construction-wise, the additions are masonry, wall-bearing structures with steel joists. Materials are concrete block painted, VCT tile floors with some carpet.

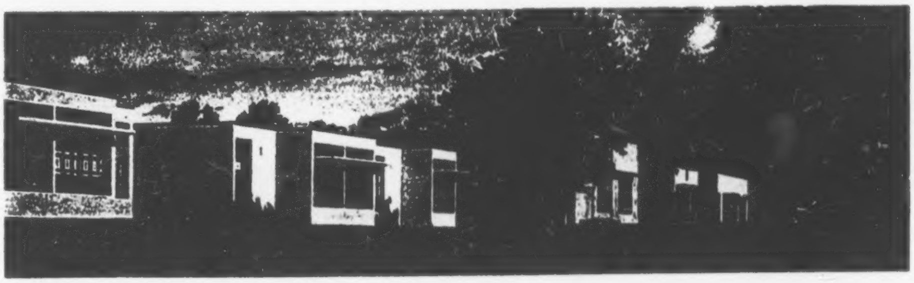
The building's mechanical system is an extension of the existing gas-fired hot water heating with fin tube and unit ventilators. ■



INTERIOR



EXTERIOR



EXTERIOR

ELEMENTARY SCHOOLS
PROJECT IN PROGRESS

Beery, Rio & Associates
8001 Braddock Road, 4th Floor
Springfield, VA 22151
Web site: www.beeryrio.com
William T. Brown II, AIA
(703) 426-9057

Design team

William T. Brown II, AIA
Partner

Richard Rutledge, Jr., AIA
Project Architect

Kiki Gram
Project Coordinator

Christie Morris-Withers
Design & Systems Coordinator

Strickler Associates, PC
Mechanical and Electrical Engineers

Ehlert/Bryan
Structural Engineers

Client

City of Fairfax Schools
(703) 385-7910

Grade span
K-6

Current building capacity
750

Current building area
108,500 square feet

Building area before addition/renovation
38,000 square feet

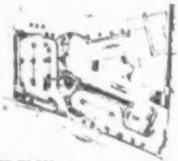
Total project costs
$9.5 million

Cost per square foot
$87.50

Space per student
145 square feet

Cost per student
$12,666

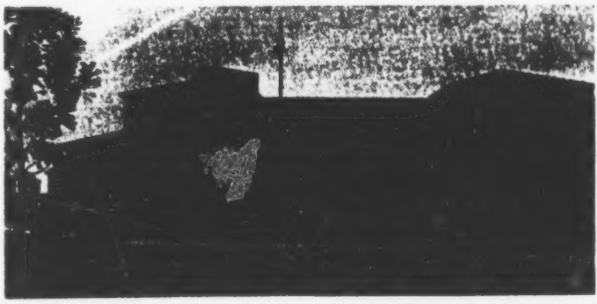
Completion date
2001



SITE PLAN

Jermantown Elementary School
Fairfax, Virginia

Beery, Rio & Associates



©BEERY, RIO & ASSOCIATES

EXTERIOR

The original Jermantown Elementary was designed and built in 1956. The project includes renovating and adding onto the existing structure in a phased construction effort to create a unique learning environment with an emphasis on communications and fine art. The project will allow the enrollment of 750 students with 90 staff members. The modernized, enlarged facility will provide for the addition of focus classrooms (communications lab with TV studio, music computer lab, and a multimedia "virtual" lab), a "Black Box" theater, a computer lab, and the core curriculum.

ENTRANCE

The size and shape of the lot allow the programmed doubling of the building size. The configuration maximizes the usable interior and exterior spaces on the site. While doing so, it not only meets state standards but also provides interesting and unique areas for learning and community use, such as the interior courtyard with amphitheater.

Consolidating the existing play areas provides better connections to the school and school programs. Separating bus and car traffic provides readily distinguishable parent and bus loop drop-offs while allowing pedestrian traffic safe access to the site. Siting of these areas allows for more flexibility, better security, and easier supervision by the teachers/administrators. ■

MEDIA CENTER

EXTERIOR

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Lincoln Elementary School Emmaus, Pennsylvania

The Architectural Studio

The Architectural Studio

30 S. Sitgreaves Street
Easton, PA 18042

Paul Felder
(610) 258-4377

Design team

Paul Felder
Partner/Designer

Barry Brobst
Partner

Dale Santee
Partner

George Moore
Project Architect

Rod Strohl
Project Manager

Snyder • Hoffman Associates
Mechanical Engineers

Adams Associates
Structural Engineers

Client

East Penn School District
(610) 530-5334

Grade span
K-5

Current building capacity
500

Current building area
47,000 square feet

Building area before addition/renovation
34,000 square feet

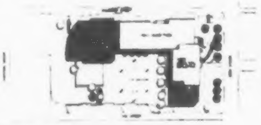
Total project costs
$4.47 million

Cost per square foot
$95

Space per student
94 square feet

Cost per student
$8,947

Completion date
September 1996



SITE PLAN

The project at Lincoln Elementary School addressed a number of issues: providing sufficient academic areas and outdoor play space for an additional 100 students on a very small site; protecting the design integrity of a historic 1928 building; modifying the appearance of a 1960s addition (which did not relate to the original building); and making the building handicapped accessible.

The design unobtrusively regrades the site to open up a previously inaccessible, unusable basement. The new lower level now houses the administration office, which is adjacent to a new handicapped parking area. The new additions were constructed of the same brick as the original building, with similar, but simplified, brick and precast stone detailing. The 1960s curtainwall was modified to echo the colors and finishes of the old and new structures.

Inside, a new elevator, ramps, and modifications of existing floor levels resulted in a unified, totally accessible building. The entire school was rewired for connection to a district-wide fiber optics network, and a new multipurpose room was added for community use. Corridor walls and ceilings were planned to accommodate the school's exceptionally active art program. ■

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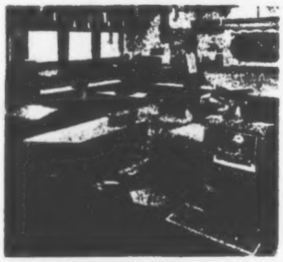
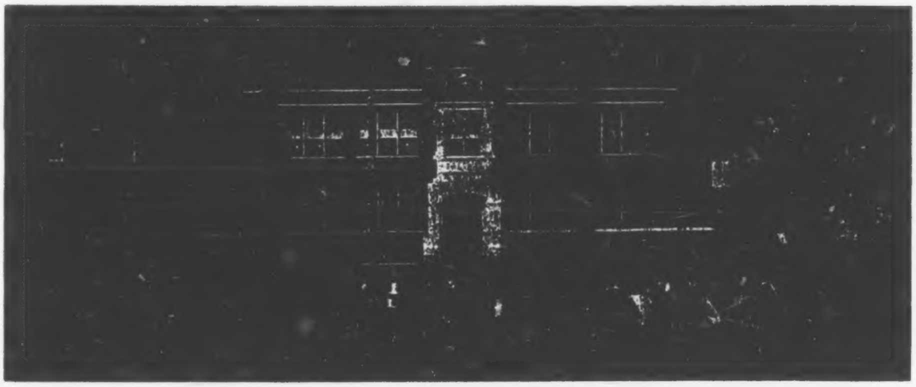
CORRIDOR



CLASSROOM



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Shriver and Holland Associates
355 W. Freemason Street
Norfolk, VA 23510
Richard G. Poole, AIA
(757) 627-4525

Design team

Henry V. Shriver, AIA
Partner-in-Charge

Richard G. Poole, AIA
Project Manager and Design Architect

Larry R. Simerson
Project Architect

William D. Almond, ASLA
Landscape Architect

Jerilyn M. Hadley
Interior Designer

ASA Architects
Associated Architects

Client

Virginia Beach City Public Schools
(757) 563-1204

Grade span
K-5

Current building capacity
750

Current building area
76,845 square feet

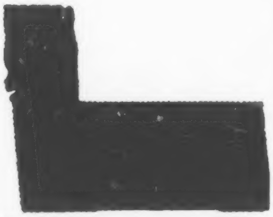
Total project costs
$6.86 million

Cost per square foot
$89

Space per student
102 square feet

Cost per student
$9,148

Completion date
January 1998



SITE PLAN

Linkhorn Park Elementary Virginia Beach, Virginia

Shriver and Holland Associates

At the request of Virginia Beach City Public Schools, Shriver and Holland Associates developed a design for a prototype elementary school with core facilities for 800 students and adaptable to three different sites.

The educational program was developed based on the following: create a facility that eases the transition of the child from home; employ educational concepts of organization that allow teachers to perform exceptionally; and develop a flexible facility having multiple uses for the school and community.

Linkhorn Park Elementary's design centers around an open courtyard that brings natural daylight into the center of the school and develops a special "sense of place" for the students, faculty, and community. The adjoining commons area connects to the administration and guidance offices, media center, gymnasium, and cafetorium. General and special education classrooms, teachers' workrooms, and fine arts functions are located in academic wings that also connect to the main commons area.

The single-story building is constructed of brick and masonry exterior bearing walls with interior steel framed columns and sloped roof structure with asphalt shingles. The building's scale, form and materials relate to the surrounding community, and the selection of building systems allowed for a rapid construction schedule. ■

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CORRIDOR

INTERIOR

LINKHORN PARK ELEMENTARY

EXTERIOR

566

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

TMP Associates, Inc.
1191 W. Square Lake Road
Bloomfield Hills, MI 48302

Gail A. Allevato
(248) 338-4561

Design team

John Castellana, FAIA
Principal-in-Charge

Steve Smith, AIA
Project Manager

Eric Geiser, AIA
Project Designer

Barry Nebhut, AIA
Project Architect

Mike Evans, AIA
Job Captain

Client

Walled Lake Consolidated Schools
(248) 960-8380

Grade span
K-5

Current building capacity
650

Current building area
71,400 square feet

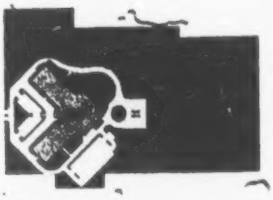
Total project costs
$7.67 million

Cost per square foot
$107

Space per student
110 square feet

Cost per student
$11,796

Completion date
November 1997



SITE PLAN

Meadowbrook Elementary School Novi, Michigan

TMP Associates, Inc.

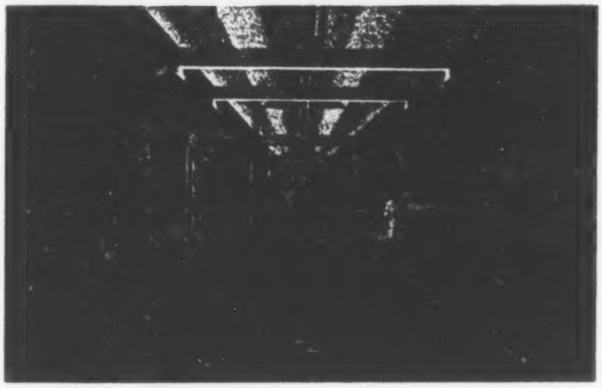
The new K-5 elementary school is sited on a picturesque 25-acre parcel in a rapidly growing suburban community. The structure is oriented on the site to take advantage of the natural features of the landscape while providing a welcoming entrance to the community, clear and safe vehicular circulation, and large areas for paved play surfaces, play structures, and athletic fields.

The school's entrance is defined by a translucent paneled portico, which provides a welcome shelter to students and visitors. Beneath the roof of the portico is a ceramic tile wall mosaic designed by students to symbolize the many pathways to which education may lead.

The plan of the school provides a central core. The focal point of the core and the academic heart of the school is the media center. The media center and an adjacent computer lab provide fully integrated technology to all students. The cafetorium and gymnasium are found at the rear of the central core. The centrally located stage is designed to serve each space individually or can be combined to provide flexible school programming while offering the capability to accommodate large assembly activities.

EXTERIOR

©LASZLO REGOS



CORRIDOR

GYMNASIUM

Flanking the central core are two academic wings that house 24 classrooms and two kindergarten classrooms, divided to serve lower- and upper-elementary grade levels. The corridors of these wings are designed with gabled ceilings, which take advantage of the volume created by the slope of the exterior roof forms. All classrooms are equipped with a technology package that includes data, voice, and video systems. This allows each child to have full access to information beyond the physical limits of the school. ■

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

VBN Architects

501 14th Street, Suite 300
Oakland, CA 94612
Web site: www.vbnarch.com

Il-Kwon Cha, AIA
(510) 763-1313

Design team

Il-Kwon Cha, AIA
Principal-in-Charge

Lyninda Snyderman
Project Architect

Sung Lee
Chris Balugay

Client

Fairfield-Suisun Unified School District
(707) 421-4061

Grade span
K-6

Current building capacity
600/750

Current building area
48,095 square feet

Total project costs
$7.3 million

Cost per square foot
$150

Space per student
64 square feet

Cost per student
$9,733

Completion date
August 1998

Nelda Mundy Elementary School Fairfield, California

VBN Architects

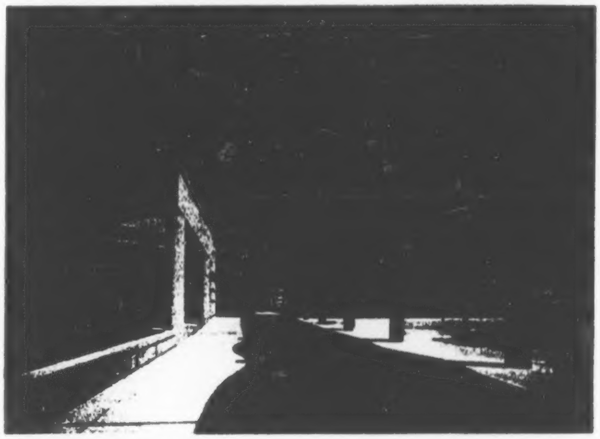
The year-round elementary school is located in a valley within a fast-growing suburban neighborhood. It is adjacent to a park available for shared use and to a creekside nature preserve.

The multiuse building, designed for use by the community, has a steeply sloping forest green metal roof to echo surrounding roof forms and to reflect the color of surrounding vegetation. The administration building is placed beside the entrance gateway for visual control of the campus. Bright, primary accent colors are painted on parapets and covered walkways to create a cheerful mood and to furnish unique identities for the classroom buildings.

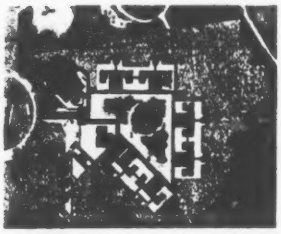
Dramatic curved and undulating covered walkways, echoing the curves of the rolling California hills, lead visitors to the arched gateway at the entrance to the central campus. Three classroom buildings, each with curve-topped parapets, surround the triangular central courtyard to provide shelter from prevailing winds and security for students. Classroom buildings are clustered by grade to form "academic villages" around small entrance courts that serve as centers where students and teachers may interact informally.

The media center, adjacent to a landscaped amphitheater for open-air classes, is placed at the heart of the central courtyard as a symbol of the goal of the school to impart knowledge. ■

CENTRAL COURTYARD AND MEDIA CENTER



ENTRANCE WALKWAY AND GATE



SITE PLAN

FRONT OF SCHOOL

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Thomas Associates Architects + Engineers PC

215 The Commons
Ithaca, NY 14850
Web site: www.Thomas-k12.com

Alicia Forbes
(607) 277-7100

Design team

James S. Loveall, RA
Wendy Robbins, RA
Project Manager

Pete Oliver
Project Architect

Michael Hunt, NCIDQ
Interiors

Mike Herzog, RLA
Landscape

Greg Wayland, PE
Structural

Caren Rubin
Heating

Bill Hayes
Technical

Jim Sanford
Electrical

Dennis Steers, CIPE
Plumbing

Client

Elizabeth School District
(908) 558-3021

Grade span
Pre-K-8

Current building capacity
550

Current building area
70,000 square feet

Total project costs
$9.16 million

Cost per square foot
$131

Space per student
127 square feet

Cost per student
$16,663

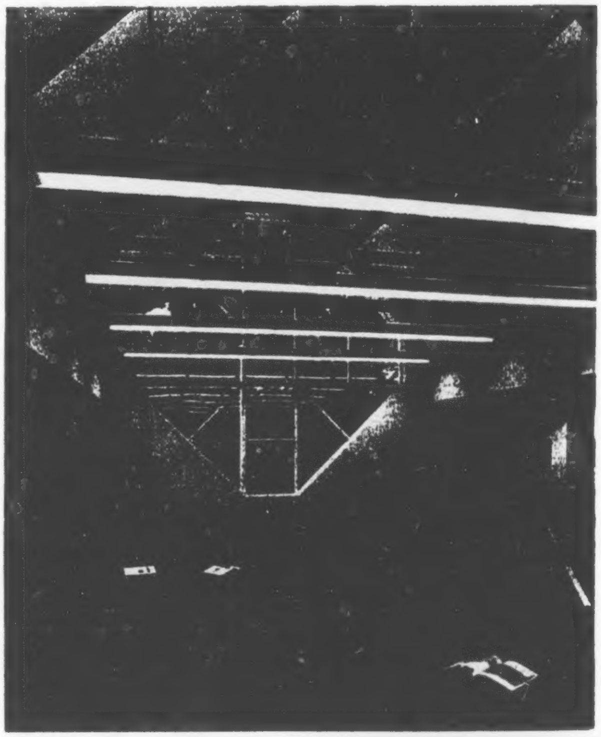
Completion date
September 1998

New Elementary School No. 26 at Janet Memorial Site Elizabeth, New Jersey

Thomas Associates Architects + Engineers PC

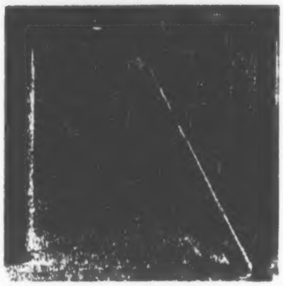
The city of Elizabeth has been experiencing a rapid growth in student enrollment. To help relieve the overcrowding felt at all of its many schools, the new 70,000-square-foot facility was designed to accommodate 550 pre-K through eighth-grade students, with two classes per grade level.

Since land is a scarce commodity, the design incorporates a three-story classroom wing to minimize the footprint, along with a single-story cafeteria/kitchen, music room, and multipurpose room equipped with a stage, as well as a library/media center on the second story stacked above the first-floor administration suite. Also incorporated into the classroom wing are an art room, a second music room, and a science room for the upper grade levels. The classroom wing offers a traditional façade along the residential Westminster Avenue, contrasting the courtyard elevation, which has more playful elements. The cafeteria and music room are colorful objects against the white of the three-story classroom corridor, which is single-loaded with lots of glass and bright yellow exposed columns and cross-bracing.

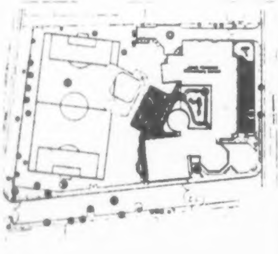

© Jon Reis/Photolink

LIBRARY

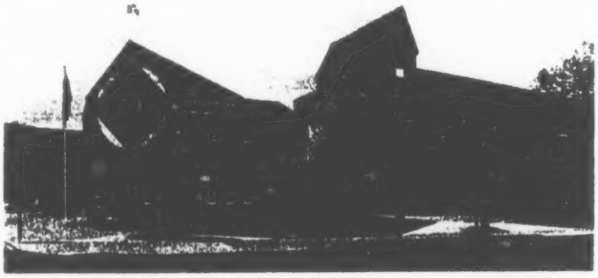
The first floor houses the younger students, with each classroom having a door directly to the enclosed exterior play area. The site offers parking for 50, as well as soccer and softball fields, an outside basketball court, and a larger play structure for the older students in the courtyard. ■



CORRIDOR



SITE PLAN



EXTERIOR

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Moseley Harris & McClintock

780 Lynnhaven Parkway, Suite 200
Virginia Beach, VA 23452

George C. Nasis, AIA
(757) 368-2800

Design team

George Nasis, AIA
Managing Principal

Meade Gill
Construction Administration

McPherson & Associates
Structural Engineering

Mathew J. Thompson
Mechanical Engineering

C. Alan Bamforth
Civil Engineering

Client

Suffolk Public Schools
(757) 925-5500
Joyce H. Trump
Superintendent

Grade span
Pre-K-5

Current building capacity
522

Current building area
61,912 square feet

Building area before
addition/renovation
14,748 square feet

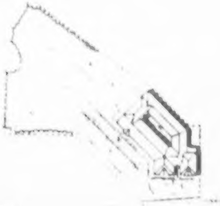
Total project costs
$5.07 million

Cost per square foot
$82

Space per student
119 square feet

Cost per student
$9,715

Completion date
September 1997



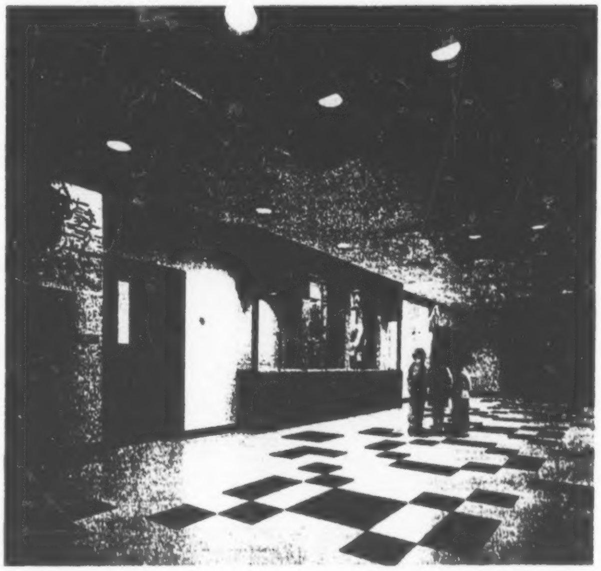
SITE PLAN

Oakland Elementary School
Chuckatuck, Virginia

Moseley Harris & McClintock

The original Oakland Elementary School, built in the 1940s, had remained at the heart of the rural community since its creation. It occupied a location directly off of Godwin Boulevard in rural Chuckatuck, and obscured from public visibility.

The existing building, while well-maintained, was antiquated and without air-conditioning or the latest technology requirements. A good portion of the classrooms were below the minimum sizes recommended by the Department of Education for elementary school use. As a result, it was decided that a combination of selective demolition, modernization, and expansion be incorporated to create a state-of-the-art elementary school for 522 students. The brick façade of the existing building, which remained, was covered in a new brick veneer to provide an upgraded envelope and new appearance.

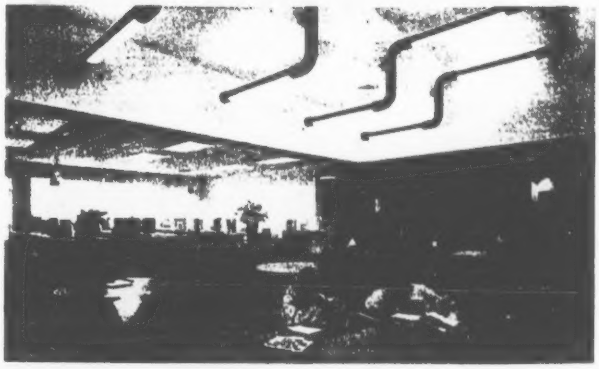


CORRIDOR

The modernized facility creates a new lobby, multipurpose room, and administrative office at the front of the existing school directly off of Godwin Boulevard, successfully creating a new image and "front door" for the school. The building includes a spacious media center accessible for public use; new classrooms for pre-K through fifth-grade pupils; and art, music, and computer labs. Interior spaces and furnishings are brightly colored and accentuated by colored floor tile patterns. A gymnasium sized for community use (50 feet wide by 84 feet long) is located adjacent to the bus loop/overflow parking area, and has its own entrance for convenient after-hours access by the community.

A full multimedia telecommunications system including voice, video, and data was included. The location of the new media center off the entrance lobby, coupled with the school's technology package, allow the community easy access to a computer lab and the Internet, an important feature for a rural community school. ■

EXTERIOR



MEDIA CENTER

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.
450 Gears Road, Suite 200
Houston, TX 77067
James Brown
(281) 876-2345

Design team

James Brown
Officer-in-Charge

Ian Powell
Mark Lam
Project Managers

Gary Lamb
Project Designer

Matt Brown
Project Architect

SHW Group, Inc.
Structural Engineers

Estes, McClure & Associates
MEP Engineers

Rogers Engineering
Civil Engineer

Client

Bellville Independent School District
(409) 865-3133

Grade span
Pre-K-3

Current building capacity
650

Current building area
54,484 square feet

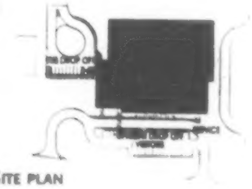
Total project costs
$3.38 million

Cost per square foot
$58

Space per student
84 square feet

Cost per student
$4,856

Completion date
July 1997



SITE PLAN

O'Bryant Primary School
Bellville, Texas

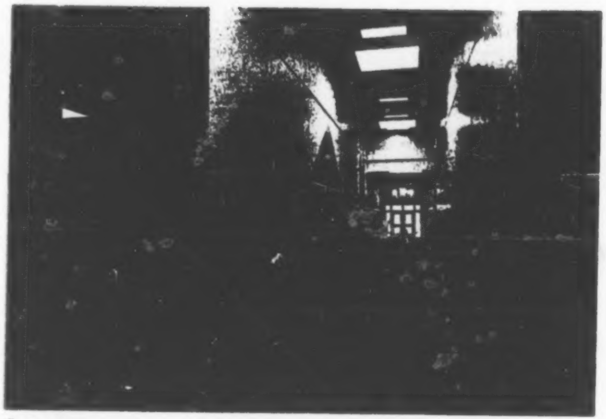
SHW Group, Inc.

In a small Texas town, building a new school is an enormous undertaking that involves the entire community. When a small community commits the kind of money it takes to build even the most cost-effective school, the people need to know that every dollar is being stretched as far as possible. Fortunately for the children of the Bellville Independent School District, the board and administration convinced the community that there would not be a wasted dollar in constructing O'Bryant Primary School.

To help convince the public that they were acting prudently in asking for a new school, the board issued a directive to put together an advisory committee involving the architects, consultants, teachers, staff, students, parents, and other representative members of the community. During the planning phases of this project, members of each of these stakeholder groups were given an opportunity to give their input based on their experiences with past designs. Meticulous notes were taken, and each point was brought to the architect's attention and taken into consideration as the master plan was developed.

Following are several key design features that helped reassure the community that their tax dollars were being spent wisely:

- Indoor play area, combined with cafeteria and stage, make optimal use of facility.
- A compact design reduces the ratio of exterior wall-to-floor area for construction cost efficiency.
- Each classroom and space in the building is equipped with dedicated HVAC systems to enable selective energy management, as well as individual control to allow for varying teacher comfort levels.
- Dual-level lighting illuminates classrooms based on instructional needs.
- Vinyl composition tile flooring and carpeting throughout classrooms and corridors. ■



CORRIDOR

CAFETERIA

EXTERIOR

ELEMENTARY SCHOOLS
Renovations/Additions

Fanning/Howey Associates, Inc.

3750 Priority Way S. Drive, Suite 110
Indianapolis, IN 46240
Web site: www.fhai.com

Daniel R. Mader, AIA
(317) 848-0966

Design team

Daniel R. Mader, AIA
Owner-in-Charge/Project Manager

Gary L. Alexander, RA
Project Architect

Nancy J. Christoph, ASLA
Landscape Architect

Gerald E. Kinyon, PE
Structural Engineer

Kenneth D. Cook, EIT
Mechanical Designer

Alvaro Villalta, PE
Electrical Engineer

Richard T. Dropik, CCS, EIT
Technical Specifications

Client

Park Tudor School
(317) 415-2701

Grade span
Pre-K-5

Current building capacity
315

Current building area
53,508 square feet

Building area before
addition/renovation
31,305 square feet

Total project costs
$6.25 million

Cost per square foot
$117

Space per student
170 square feet

Cost per student
$19,855

Completion date
1997

Park Tudor Lower School
Indianapolis, Indiana

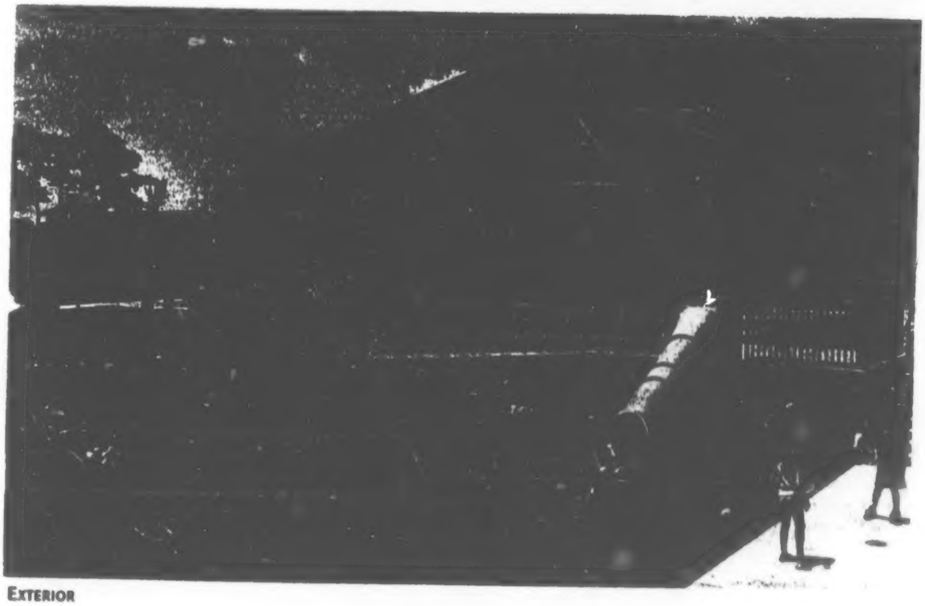
Fanning/Howey Associates, Inc.

Park Tudor School is a private school located in the heart of Indianapolis. This preschool through grade 12 facility is located on approximately 50 acres in a campus setting. The additions and renovations to the Lower School expanded the building site by approximately 40 percent, accommodating pre-kindergarten through grade five.

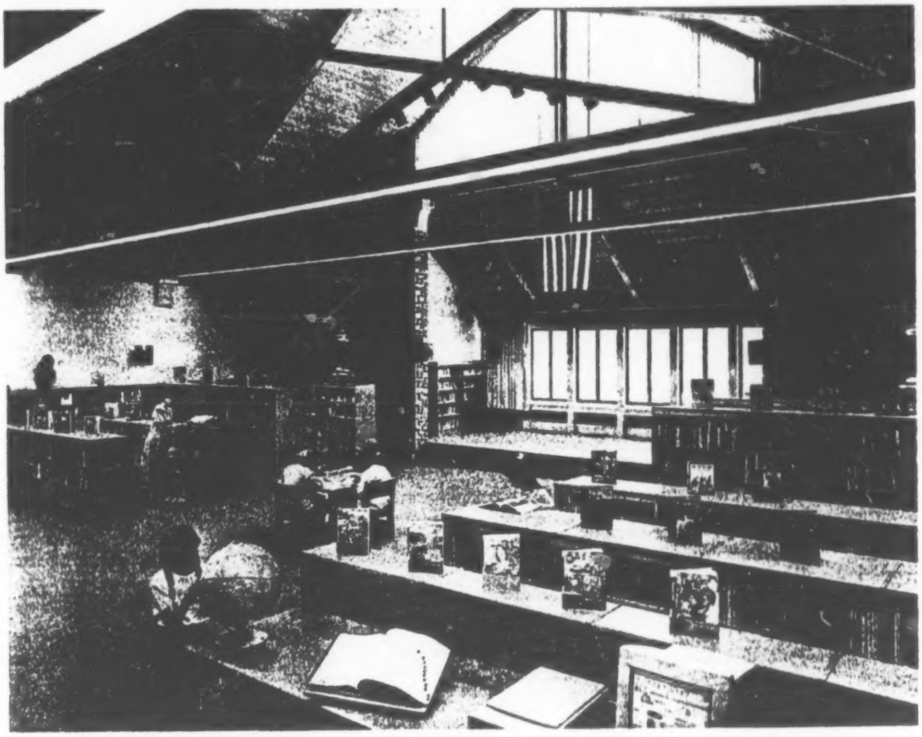
Also located on this site is a middle school for grades 6-8 and an upper school for grades 9-12. A separate physical education facility offers a full gymnasium with a second floor weight room and track. The cafeteria and fine arts facilities, located in separate buildings, serve the entire campus.

The original Lower School was designed in 1967. The existing 31,305 square feet was renovated with a new addition of 22,303 square feet. Field-

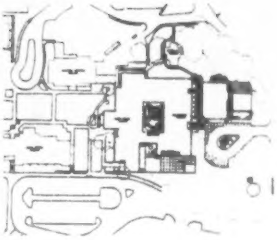
Exterior



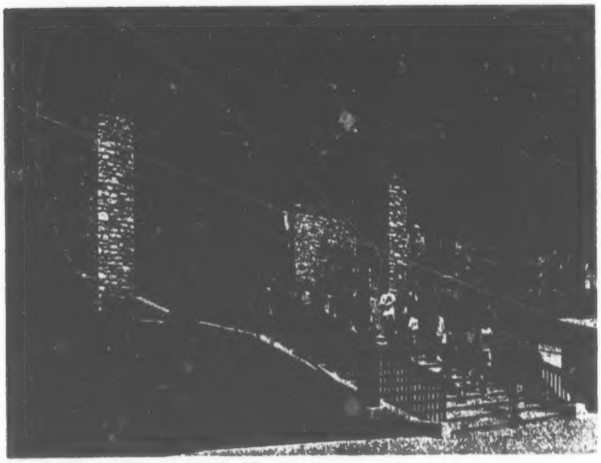
Exterior



LIBRARY



SITE PLAN



ENTRANCE

DAY AREA

stone and clay tile shingles were used to keep in character with the original campus design. The addition allowed for a preschool center, administrative offices, and additional classroom spaces. The creation of an outdoor courtyard enables natural light to enter into the classrooms and corridors and serves as an outdoor learning environment. As a result of the renovation project, the building was brought into compliance with current building codes and requirements for persons with disabilities.

The structural system consists of a structural steel frame with a concrete foundation. The exterior wall is a fieldstone veneer with a masonry backup. The exterior windows are steel to match the existing windows on campus. The interior walls are metal stud with gypsum board. A textured plaster surface was applied over the gypsum board in the corridors to match the wall finish in the existing corridors. Carpet and vinyl-composition tile are the predominant floor finishes. ■

TYPICAL CLASSROOM

[illegible] 573

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.

1290 W. Grand River Ave.
Williamston, MI 48895
Web site: www.fhai.com

George M. Kacan, AIA, REFP
(517) 655-1183

Design team

Ronald Fanning, AIA, PE
Principal-in-Charge

George Kacan, AIA, REFP
Project Manager

George W. Auch Construction Company
Construction Manager

Susan DeWitt, IIDA
Interior Designer

Allan Mee, RLA
Construction Administrator

Joaquin Fuentes, AIA
Project Architect

Dennis Hacker, AIA, CCS
Specifications Writer

Patricia Mitchell, PE
Structural Engineer

Ron Levinson, JLSD Consulting Engineers
Electrical Engineer

Wayne Johnson, JLSD Consulting Engineers
Mechanical Engineer

Kent Bryan, PE
Civil Engineer

Nancy Christoph, ASLA
Site Development

Vomdran and Associates
Food Service Consultant

Yerges Acoustics
Acoustical Consultant

Client

Holly Area Schools
(248) 634-4431

Grade span
K-5

Current building capacity
450

Current building area
59,371 square feet

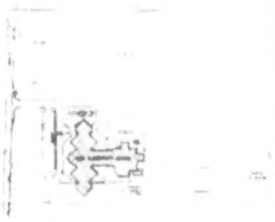
Rose Pioneer Elementary School Holly, Michigan

Fanning/Howey Associates, Inc.

Rose Pioneer Elementary School was built to address increasing enrollments at Holly Area Schools, one of the largest school districts in Oakland County, Michigan. This district serves more than 4,100 students and encompasses 120 square miles.

The single-story building was designed in three zones that function together during school hours and separately for community activities after hours. The academic zone houses classrooms and the media center. The building support zone includes teacher planning rooms, a community room, and administrative offices. The community zone encompasses the multipurpose cafeteria/gymnasium, music room, latchkey room, and mechanical support spaces.

In keeping with the area's residential character and to provide an appearance sympathetic to elementary children, the facility was designed with sloped shingled roofs, cupolas housing rooftop mechanical units, and a main entry "porch" that is easily identifiable through size, color, and signage. In the interior, wherever possible, corridors connecting the three zones are lined with windows that provide borrowed natural light to



SITE PLAN

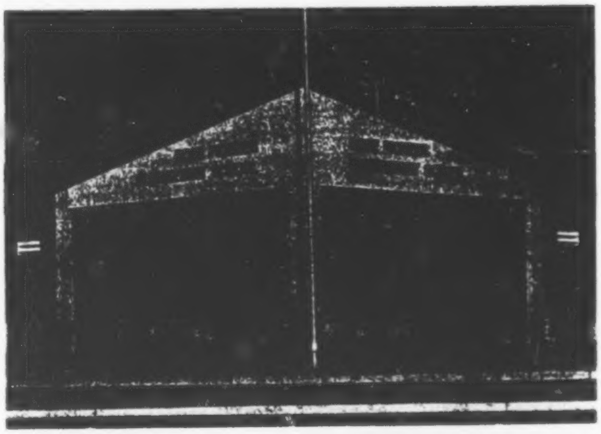
Total project costs
$6 million

Cost per square foot
$101

Space per student
132 square feet

Cost per student
$13,351

Completion date
1997



MEDIA CENTER EXTERIOR

©Ralph Einhaus Photography

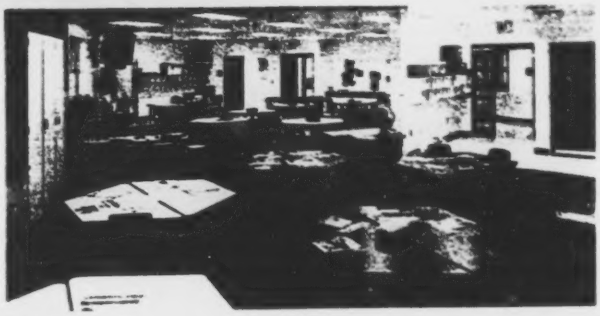
ART ROOM

KINDERGARTEN

small-group instruction rooms and administrative areas. Colorful flooring provides for easy wayfinding throughout the facility.

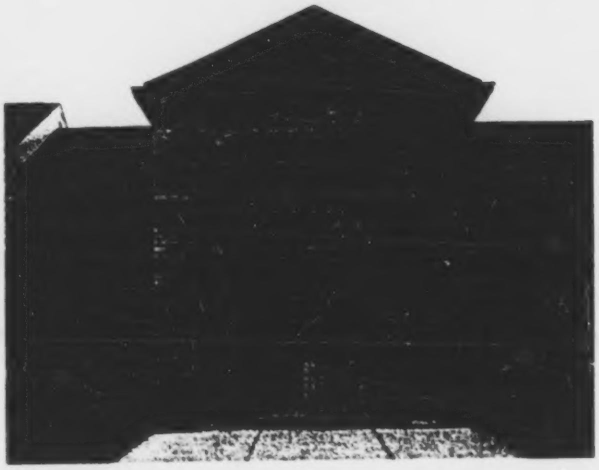
The academic zone contains classroom clusters of three rooms with operable walls that can be used individually or opened for team teaching of up to 100 students. Due to the raised ceiling and expansive window wall, the media center is the focal point of the building's academic zone from both the exterior and the interior. The eastern exposure through the windows provides abundant natural light into both the stacks and the reading areas. Students have access to numerous print volumes and computer workstations housed in this bright, welcoming space. All fixtures and loose equipment are scaled appropriately for young users.

The community zone of the building houses the gym, cafeteria, music room, and mechanical spaces. The music room is used for daily classes, performance setup and practice, and direct access to the raised stage. A moveable wall between the gym and cafeteria allows this multipurpose space to be used for large assemblies and performances or portioned off for individual gym classes and daily lunches. A large storage space next to the stage houses moveable seating, which allows for quick changes before and after lunch periods. A separate entry for the community zone allows this portion of the building to be secured from the other zones for after-hours use. ■



CLASSROOM

MEDIA CENTER



MAIN ENTRY

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

RUHNAU RUHNAU ASSOCIATES

5751 Palmer Way, Suite C
Carlsbad, CA 92008

David Ruhnau, AIA
(760) 438-5899

Design team

David Ruhnau, AIA
Principal-in-Charge

Joseph Calderon, RA
Project Architect

Kathy Davis
Interiors and Graphics

Client

Chula Vista Elementary School District
(619) 425-9600

Grade span
K-6

Current building capacity
650

Current building area
42,300 square feet

Total project costs
$4.1 million to $5.1 million

Cost per square foot
$97 to $121

Space per student
65 square feet

Cost per student
$6,308 to $7,906

Completion date
1989-1998

Six Prototype Elementary Schools Chula Vista, California

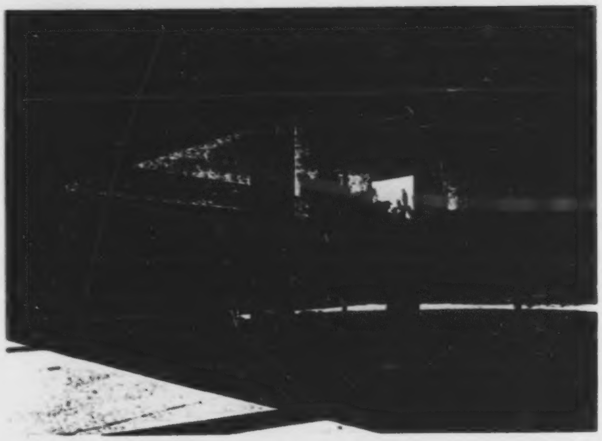
RUHNAU RUHNAU ASSOCIATES

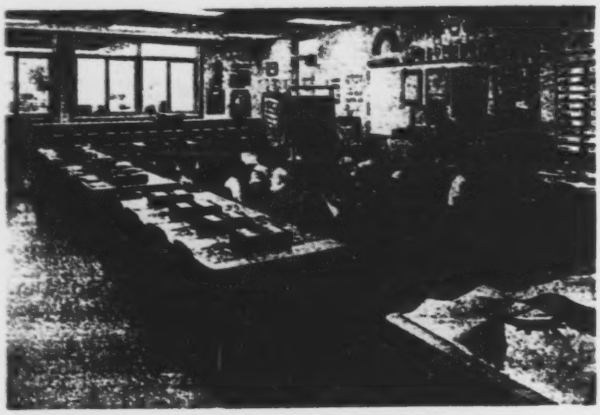
A decade ago the Chula Vista Elementary School District, located near the Mexican border, foresaw an explosive enrollment increase. In collaboration with the district's architects, it initiated an ongoing building program using a prototype design adapted to individual sites either as is or reversed with minimal effort and cost.

Advantages included: time savings, expediting completion of schools; savings in administrative and design costs; uniform educational program for all schools; and availability of sites in appropriate residential areas that, in the future, might not be available.

The program: a school plan that can easily be adapted to sites selected by the district; an emphasis on educational technology for today, with provisions for the future; cluster classrooms with provisions for year-round education and team teaching, with adequate storage; favorable climate provision at outdoor areas for student gatherings and play; circulation between units to provide student/faculty protection from the elements; and faculty, parents, community, and service vehicle parking and access with separate student entry walks.

The success of this prototype school building program is best expressed by the enthusiastic acceptance of the completion of six schools in the past nine years, with one under construction. ■


EXTERIOR


INTERIOR

EXTERIOR

SITE PLAN

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

The Ray Group Inc.
127 E. Orange Street
Lancaster, PA 17602
Web site: www.raygroup.com
Rena C. Grimmer
(717) 392-6502

Design team

Michael R. Patton, AIA
Project Director

Bonnie M. Sowers, AIA
Project Manager

Donald D. Searle, AIA
Project Architect

Lisa A. Whitmeyer
Project Designer

Client

Perkiomen Valley School District
(610) 489-8506

Grade span
K-5

Current building capacity
800

Current building area
84,531 square feet

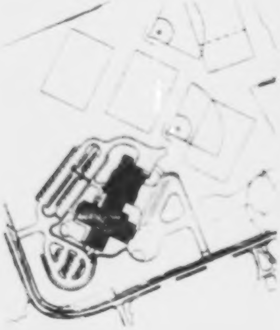
Total Project costs
$9.73 million

Cost per square foot
$115

Space per student
105 square feet

Cost per student
$12,163

Completion date
September 1998



SITE PLAN

Skippack Elementary School Collegeville, Pennsylvania

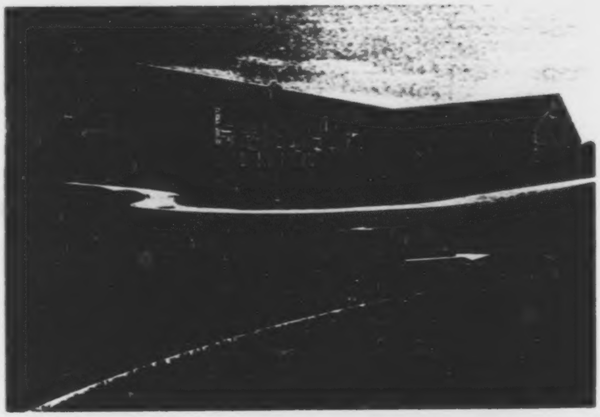
The Ray Group Inc.

This new building returns to the community the focal point that was lost several decades ago when a previous Skippack Elementary School was closed and students were bused to a new facility in the center of the district. This new school sits on a 35½-acre site on the edge of the village and is surrounded by single-family homes. The architecture was to be sympathetic to the surrounding residential environment.

The program included 25 classrooms (five per grade), three kindergarten rooms, a centrally located library and computer lab, art and music rooms, a multipurpose room, and offices.

The shingled, domestic-style roof blends the building with its neighborhood. To incorporate the sloped roof form and stay within the district's budget, a linear-type plan was developed. Educational programming dictated grouped grade levels, arranged into "pods." The resulting cruciform plan placed the multipurpose room and administrative area at the base and groups of classrooms radiating off a central library and computer lab. Primary grades are situated on the lower level while upper grades (3-5) are on the second floor.

Within the building, decorative historic ornaments are included to remind the community of the old Skippack Elementary School. These architectural elements, re-created in a new context, generated a positive excitement and eagerness of ownership. ■



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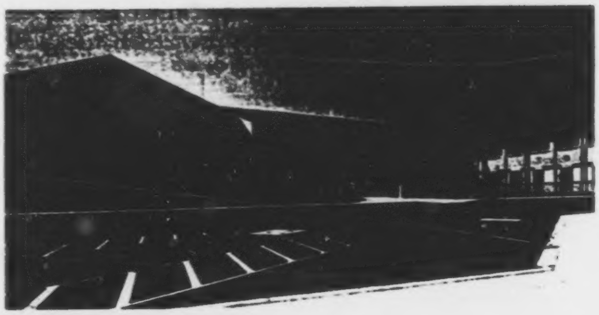
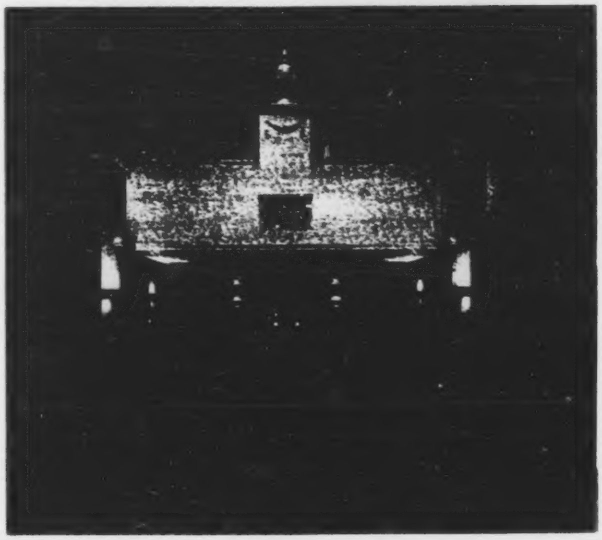


EXTERIOR



LOBBY

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Durrant

942 CyCare Plaza
Dubuque, IA 52001
Web site: www.durrant.com

Kevin J. Epperle, AIA
(319) 583-9131

Design team

Gerald L. Guy, PE
Project Director

Kevin J. Epperle, AIA
Architectural Project Director

Eric Gleckler
Architectural Project Manager

Gary Schulte
Project Architect

George F. Hannaman
Plumbing Designer

Dieter Muhlack
HVAC Designer

Lauran B. Larson, PE, SE
Structural Designer

Martin K. Valentine, PE
Electrical Designer

Donald A. Vita, AIA,CSI
Construction Manager

Steven R. Robinson
Cost Manager

William J. Schmelling
Field Manager

Client

Sycamore Community Unit School District #427
(815) 899-8103

Grade span K-5

Current building capacity
510

Current building area
52,000 square feet

Total project costs
$5.32 million

Cost per square foot $102

Space per student
102 square feet

Cost per student
$10,438

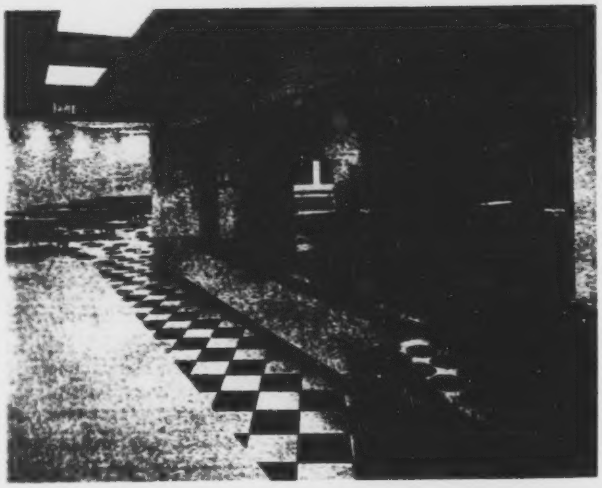
Completion date
August 1998

South Prairie Elementary School
Sycamore, Illinois

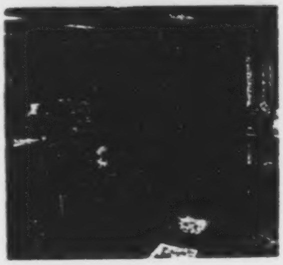
Durrant

The new 52,000-square-foot South Prairie Elementary School incorporates the latest innovations in both educational technology and accommodation of curriculum. A K-5 facility, it has 17 classrooms: three sections each of grades 1-5, and two classrooms for the four half-day kindergarten sections. Several classrooms have movable walls, allowing the instructors to engage their classes in multiage teaching. The facility is fully accessible, and this design feature has already proven its value not only the to the staff but also to those students to whom accessibility means additional independence.

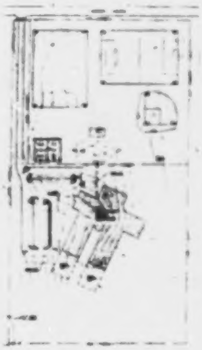
The project was developed as a "community school." The concept is to foster community involvement, develop a community project, and share a community facility. This theme is very apparent in the design of the facility. A joint parent-faculty workroom fosters parental involvement, not only in school activities but also in their children's education.



CAFETERIA



LIBRARY

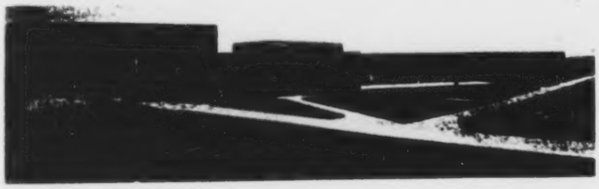


SITE PLAN

Perhaps the most significant appearance of the community school theme is in the fact that this facility was developed on a site shared with the park district. Adjacent to the school building is a community park. Through an intergovernmental agreement, the school uses the park facility for physical education and playground recess, and the park district uses the school's gymnasium, storage space, and parking facilities. A unique security plan allows public users into the gymnasium areas, cafeteria, and the nearby restrooms, while keeping the classroom and office areas of the building secure.

The facility is fully integrated with the latest educational technology. Every classroom is connected to the district's wide area network. In addition, the classrooms are designed for future cable television reception.

The school was appropriately named South Prairie to reflect Illinois' historic roots in the past, but the facility was consciously designed for the learning technologies of tomorrow. ■



EXTERIOR

Sunnyside Elementary School
Indianapolis, Indiana

R.W. Clinton & Associates, Inc.

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

R.W. Clinton & Associates, Inc.

4440 Garwood Place
Richmond, IN 47374

Gary Turner
(765) 966-3546

Design team

George M. Clinton, AIA
Principal

Gary Turner, AICP
Project Manager

Duane Hamm
Job Captain

Jack B. Shank, PE
Project Engineer

Richard K. Venton, PE
Mechanical Engineer

Client

M.S.D. of Lawrence Township
(317) 546-4921

Grade span
1-5

Current building capacity
800

Current building area
81,973 square feet

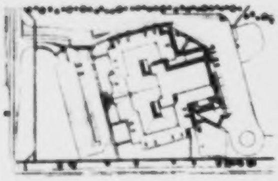
Total project costs
$9 million

Cost per square foot
$110

Space per student
103 square feet

Cost per student
$11,250

Completion date
October 1998



SITE PLAN

Sunnyside Elementary opened in 1998 as the latest flagship of the MSD of Lawrence Township Community Schools. Sunnyside is designed to serve as a "village center" in a neighborhood prone to explosive growth. The scale, style, and articulation of the building exterior complement the residential character of the neighborhood.

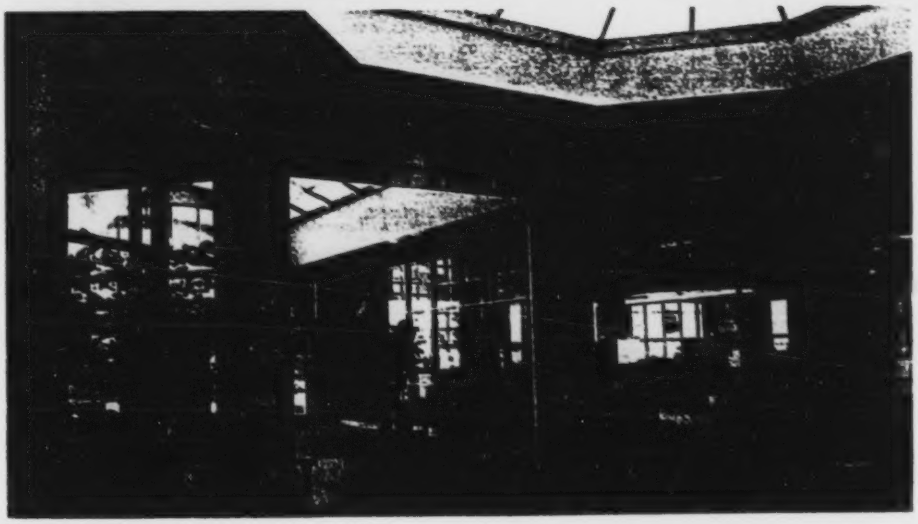
Inside the building, a figure-eight plan separates the classroom wings from the central space where the cafeteria, gymnasium, media center, and administration suite are housed. The four corners of the classroom wings are anchored with pods designed as small- group instruction areas where multiple classes can assemble for instruction.

The classrooms, media center, and small group instruction pods incorporate media retrieval systems and computer work stations linking the building internally, as well as externally to the school district's network. Space has been planned with an emphasis on flexibility to quickly adapt to more students and the changing demands of the educational program.

The many special features of Sunnyside work in concert to create an educationally sound environment for children as well as a social/cultural center for a fast-growing neighborhood. ■

EXTERIOR

LIBRARY



FOYER

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Habiterra Associates

1279 N. Main, Box 609
Jamestown, NY 14702-0609

John Shedd
(716) 664-4710

Design team

Paul Hedin
Project Architect

Lorry Johnson
Project Coordinator

Robert Nordin
CADD Manager

Stephen Olson
CADD Specialist

Gordon Peterson
Specifications

Client

Niagara-Wheatfield Central School District
(716) 731-7342

Grade span
K-5

Current building capacity
650

Total project costs
$7.9 million

Cost per student
$12,154

Completion date
July 1998

SITE PLAN

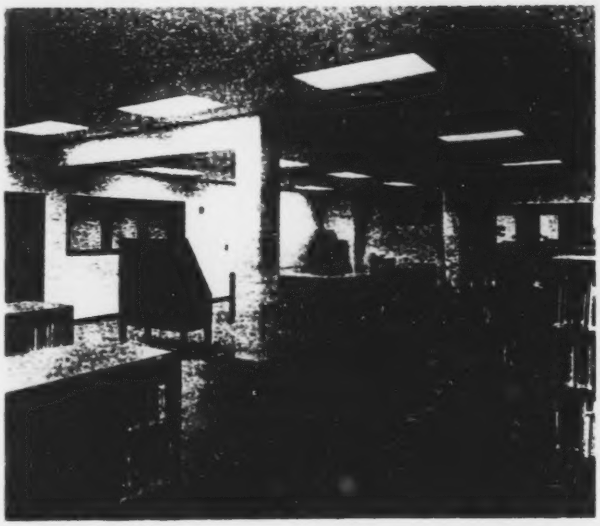
West Street Elementary School Sanborn, New York

Habiterra Associates

The new West Street Elementary School is a product of expanding enrollment and of the visions of the community, teachers, staff, the board of education, and the superintendent for new facilities to meet the higher standards of education in the Niagara-Wheatfield Central School District. The $7.9 million elementary school is part of a $21 million district-wide capital improvement project.

The final "open cluster" design evolved from options based upon the popular "instructional school house" and "classroom pod" concepts. The "open cluster" hybrid design uses both concepts at a lower construction cost. Each wing opens into a commons area where group activities occur. Teachers work with their students from rocking chairs placed in the commons, making the youngsters feel comfortable in their classroom environment.

A cafetorium allows the school to have multiple uses of a single area. The elementary gymnasium is large enough for sporting events and assemblies. A new library/media center, and a new office area are located off of the entry lobby for full supervision and security.



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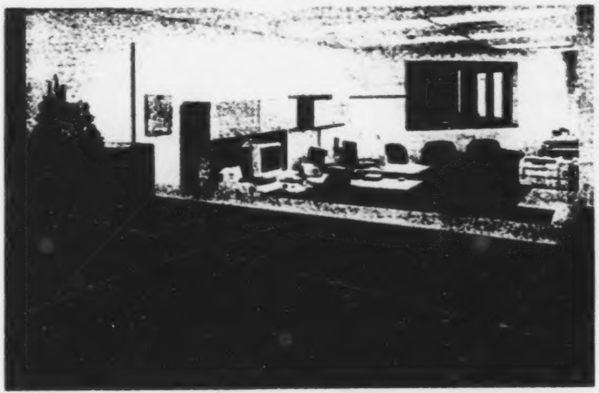
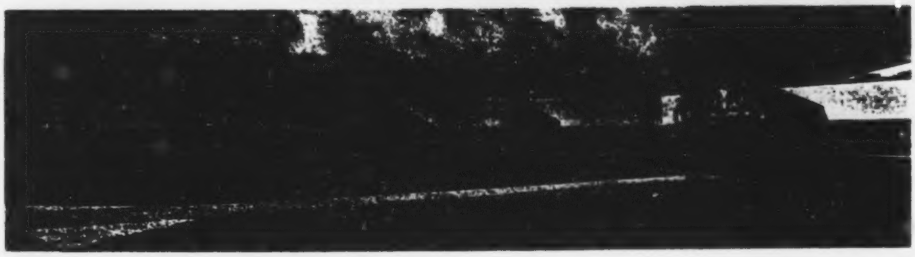
LIBRARY

The new building siting was constructed by the "L"-shaped property. Designs for parking, a bus loop, and play fields were efficiently configured to fit neatly on the site, while providing optimal safety and function. ■



OFFICE



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

DLR Group
9521 W. 78th Street
Minneapolis, MN 55344
Web site: www.dlrgroup.com
Griff Davenport
(612) 941-8950

Design team

DLR Group

Client

Westby Area School District
(608) 634-3133

Grade span
Pre-K-4

Current building capacity
600

Current building area
64,000 square feet

Total project costs
$5.89 million

Cost per square foot
$92

Space per student
106 square feet

Cost per student
$8,250

Completion date
April 1998

SITE PLAN

Westby Elementary School
Westby, Wisconsin

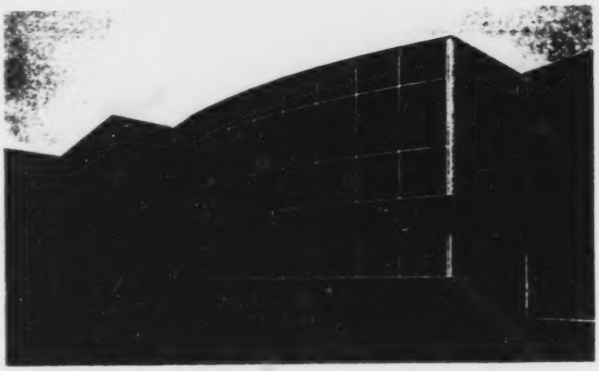
DLR Group

The success of the 64,000-square-foot, early childhood and K-4 facility is attributed to our hands-on, client-centered design approach. Site, programmatic, and aesthetic design covenants were identified through an owner/architect design charette. These covenants then guided architects through the process of creating this two-story walk-out facility.

Upon entering Westby Elementary School, students are introduced to the primary use spaces of the school—the commons/cafeteria and instructional media center. The transparent two-story center of the facility exposes the building's organizational structure while providing an impressive panoramic view of the rolling countryside along the facility's southwestern exposure.

The administration area is located adjacent to the main entrance and serves as a gateway to the early childhood wing and academic grade levels beyond. Within each academic wing the mainstream educational program areas function alongside the special needs learning spaces.

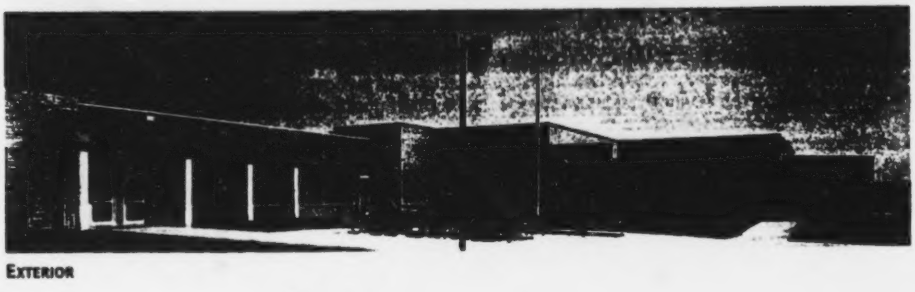
Head-end rooms house integrated technology equipment throughout the facility. Every classroom, teaching, and support space is linked together. Additional infrastructure is already in place for future growth and re-configuring of programmatic needs. Mechanically, the facility is 100 percent air-conditioned, utilizing central station air-handling units with variable air volume reheat. Special systems ensure student comfort and ease of maintenance. ■



© Dan Wong

EXTERIOR

INTERIOR



EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

Schenkel & Shultz, Inc.
200 E. Robinson Street, Suite 300
Orlando, FL 32801
Web site: www.schenkelshultz.com
Yvonne S. Garvin
(407) 872-3322

Design team

J. Thomas Chandler, AIA
Principal-in-Charge

Daniel M. Tarczynski, AIA
Principal of Design

W. Lenard Gabriel, AIA
Project Director

Joseph S. Toth, AIA
Project Architect

Client

Seminole County Public Schools
(407) 320-0000

Grade span
Pre-K-5

Current building capacity
900

Current building area
117,000 square feet

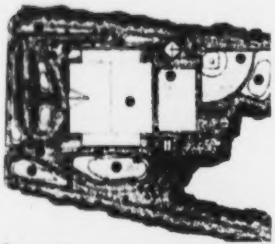
Total project costs
$7.8 million

Cost per square foot
$67

Space per student
130 square feet

Cost per student
$8,678

Completion date
August 1997



SITE PLAN

Wicklow Elementary School Sanford, Florida

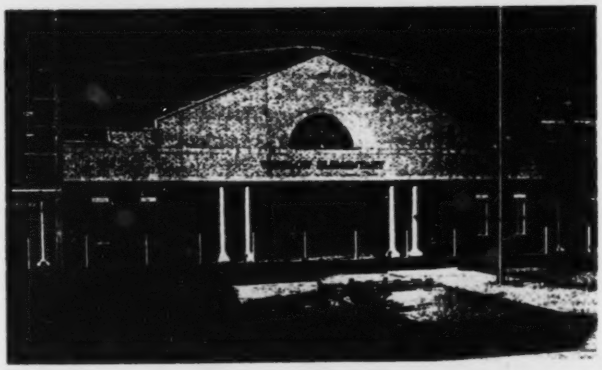
Schenkel & Shultz, Inc.

Wicklow Elementary School is a prototype design offering security, optimum site utilization, and cost effectiveness. The facade is a traditional red brick, with Tuscan columns supporting a traditional entablature and pediment that accentuate the entrance. The straightforward building lines combine with simple, repetitive window patterns for a clean, elegant elevation. Security issues are addressed by minimizing points of entry, providing a central control point for administration, using fire protection systems, and separating bus, car, and student traffic.

Wicklow's compact design reduces site utilization 10 to 20 percent. It also reduces exterior perimeter walls, reduces mechanical and electrical runs, and allows for streamlined administrative supervision.

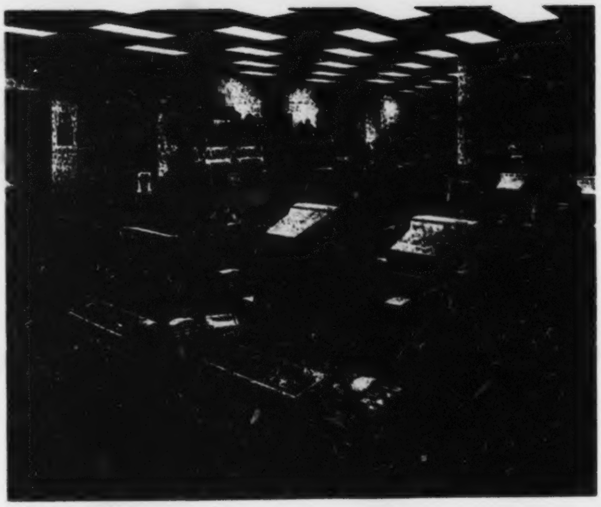
Merits of the design include flexibility in customizing interior spaces to accommodate future curriculum changes, growth, and expansion. The school also serves the community after hours with the administration suite, media center, and cafeteria/multipurpose room accessible from a common lobby.

The building is pre-engineered frame with block infill walls and brick veneer. Flooring is concrete slab on grade. The roof is a streamlined gable, factory finished metal room system on a pre-engineered steel structure and is virtually maintenance free. HVAC is provided by an air-cooled chiller plant. ■



EXTERIOR

CLASSROOM



MEDIA CENTER

ELEMENTARY SCHOOLS
RENOVATIONS/ADDITIONS

Jeter, Cook & Jepson Architects, Inc.
450 Church Street
Hartford, CT 06103
James E. LaPosta, Jr., AIA
(860) 247-9226

Design team

David G. Jepson, AIA
Principal-in-Charge

James E. LaPosta, Jr., AIA
Design Architect

Peter N. Stevens, Principal
Community Relations

Robert A. Andrade, AIA
Project Manager

David S. Spencer, AIA
Project Manager

Lisa G. Kavarnos, AIA
Job Captain

Terrance Connolly
Construction Administrator

Client

Middletown Public Schools
(860) 638-1401

Grade span
Pre-K-5

Current building capacity
550

Current building area
70,000 square feet

Total project costs
$9.8 million

Cost per square foot
$140

Space per student
127 square feet

Cost per student
$17,800

Completion date
January 1998

SITE PLAN

Wilbert Snow Elementary School
Middletown, Connecticut

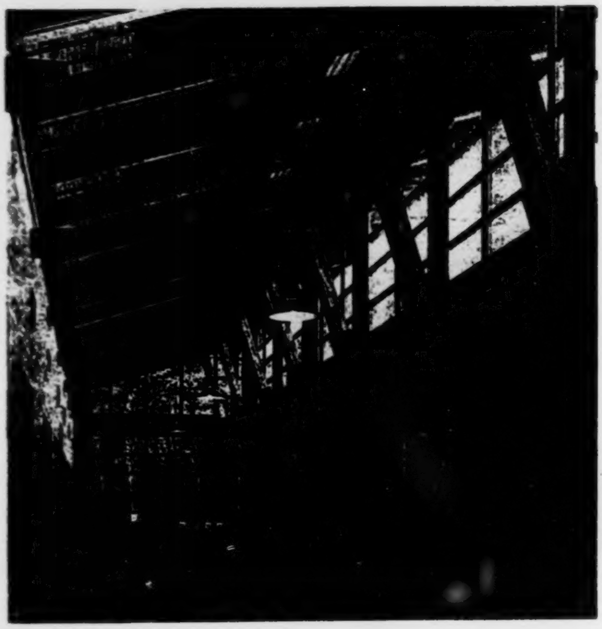
Jeter, Cook & Jepson Architects, Inc.

Located on a thickly wooded site, Wilbert Snow Elementary School was designed to evoke a park-like image and setting. The original school was a seven-building campus that allowed children close contact with the beautiful site, but resulted in lost instructional time in inclement weather. The owner wanted to demolish the classroom buildings and create a new structure to connect the auditorium portion of the main building to the gymnasium and preschool building.

It was important to the school community that the special character of the site be maintained in any new construction. The addition links the remaining pieces of the original building (all at different elevations and plan angles) using a series of single-loaded corridors that allow views into the woods; this preserves the sense that students are still walking outdoors as they move between classes.

A unique feature of the project includes the remains of an 18th century road that passes through the site. At different points the road, believed to be the location of a town meeting with George Washington, becomes an outdoor learning center, primary playground, and the main lobby of the school. A pedestrian bridge from the main building provides protected passage to the new dining hall (created from the existing preschool building) and maintains neighborhood access to the site's recreational amenities.

The instructional areas are grouped by grade level. Each is identified by signage and cast-stone medallions that represent plants and animals found on the site. Wood and masonry form a palette of materials that further connects the learning environment to the natural one. ■



© 1998 Woodruff/Brown

MAIN LOBBY

CLASSROOM

EXTERIOR

ELEMENTARY SCHOOLS
NEW CONSTRUCTION

French Associates, Inc.
1600 Parkdale
Rochester, MI 48307
David G. French, AIA
(248) 656-1377

Design team

David G. French, AIA
Principal-in-Charge

Paul A. Corneliussen, AIA
Project Manager

Peter Basso Associates
Mechanical/Electrical Engineer

Spalding Dedecker
Civil Engineer

L&A, Inc.
Structural Engineer

C.I.I. Food Service
Food Service Design

Grissim-Metz
Landscape Architect

Client

Avondale School District
(248) 852-4411
Dr. James Bird
Superintendent

Grade span
K-4

Current building capacity
400

Current building area
54,000 square feet

Total project costs
$5.9 million

Cost per square foot
$109

Space per student
135 square feet

Cost per student
$14,750

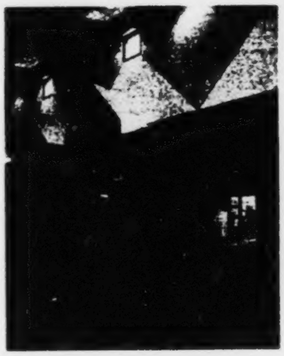
Completion date
July 1998

SITE PLAN

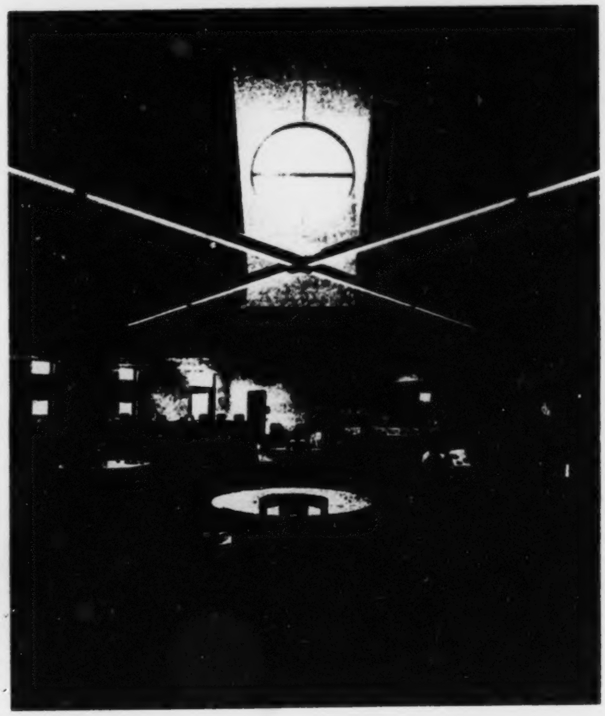
Woodland Elementary School
Troy, Michigan

French Associates, Inc.

Sometimes, more is more. French Associates worked with a 50-person committee in the design of Woodland Elementary School. The committee, consisting of administration, staff, and parents, generated many great ideas that were incorporated into the design. More people, more ideas.



CORRIDOR



MEDIA CENTER

© C. Todd Roberts/Hedrich-Blessing

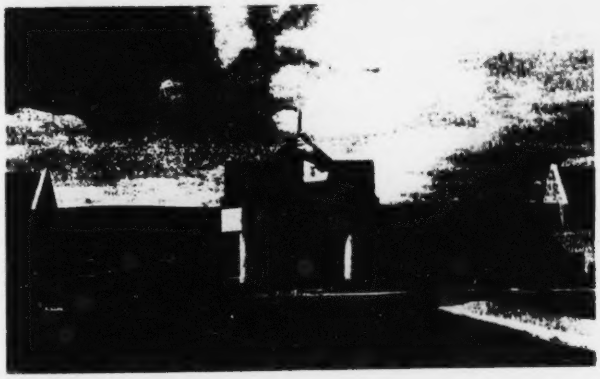
The 16 classrooms of this K-4 facility are organized into four "families," each having its own commons area. The commons areas are used for a variety of functions ranging from group instruction to individual student tutoring. Two family groups make up a neighborhood arrangement in this creative plan.

Pitched roof display cases separate the "houses" from the main street corridor. Each classroom has its own display case with a "picture window" on the main street.

The focus of the school is a skylit rotunda that features a granite tile "compass" floor design. The stage features a playful "waving ribbon" proscenium that opens into the cafeteria/gym. A movable partition allows the cafeteria and gym to accommodate large audiences and group functions.

Four dormers with circular windows allow natural light to flow into the media center, and a large bay window flanks the tiered story area. An array of brick patterns and colors highlight the "Disneyesque" exterior of the facility.

A single word is carved into the limestone panel at the front of the facility. It states, with simplicity and pride, "School." ■



EXTERIOR

K-8 SCHOOLS
NEW CONSTRUCTION

DeStefano and Partners

445 E. Illinois Street
Chicago, IL 60611

Avram Lothan
(312) 836-4321

Design team

James R. DeStefano, FAIA, RIBA
Managing Principal

Avram Lothan, AIA
Design Principal

Richard J. Plotnick
Senior Technical Coordinator

Kara Boyd
Jane Tatlock
John Hill
Bryndis Pape
Team

Client

Rockford Public Schools
(815) 966-3101

Grade span
K-8

Current building capacity
750

Current building area
84,000 square feet

Total project costs
$8.6 million

Cost per square foot
$102

Space per student
112 square feet

Cost per student
$11,400

Completion date
October 1998

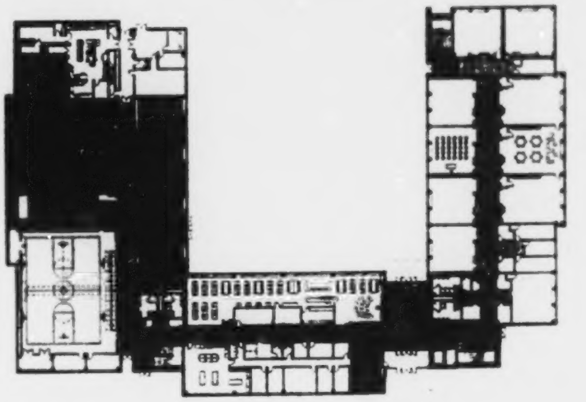
Barbour Magnet School
Rockford, Illinois

DeStefano and Partners

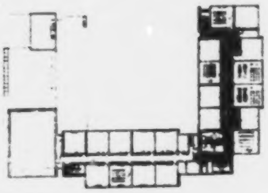
Rockford Public Schools' mission for this new K-8 magnet school is to achieve full Spanish/English fluency and two-way cultural immersion for all 750 students. DeStefano and Partners' design supports this unique educational program by reinforcing various Latin American cultural traditions within a state-of-the-art physical environment.

Organized around a courtyard, the 84,000-square-foot building's plan includes administrative office space, a full-service kitchen and dining center, classrooms ranging in size from 900 to 1,200 square feet, and full special education facilities. Special-use areas include a 1,100-square-foot multipurpose room, a gymnasium, a 2,900-square-foot library and related work/storage areas, a full-size computer classroom, and separate art and music classrooms. School components, identified by color-coded masonry, give the structure the appearance of a cluster of smaller buildings arranged around the landscaped courtyard. Intense colors, evoking the saturated color environments typical of many Latin American cultures, are used throughout to help distinguish different spaces within the building.

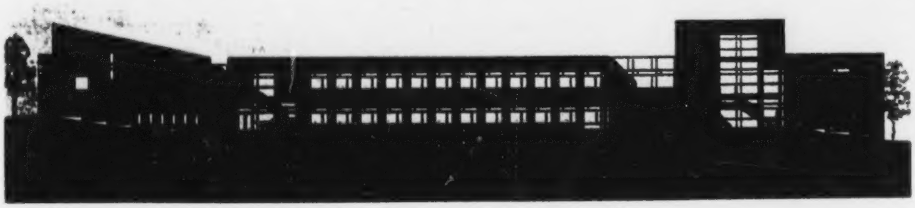
Responding to the City of Rockford's intention that the building also function as a community resource, the design groups the gymnasium, cafeteria, art, music, and multipurpose rooms within one wing of the building to provide secured after-hours and weekend access. ■



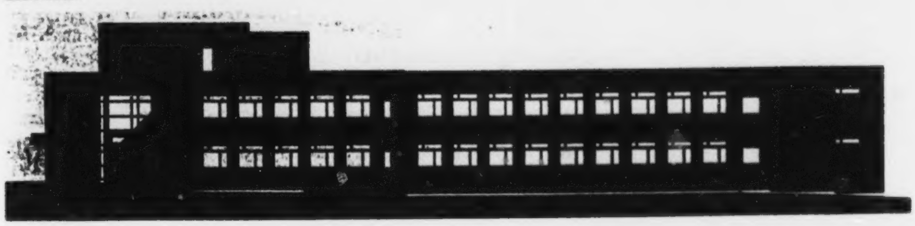
FIRST FLOOR PLAN



SECOND FLOOR PLAN



ELEVATION



ELEVATION

K-8 SCHOOLS
NEW CONSTRUCTION

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139
Web site: www.hmfh.com
Susan Elmore
(617) 492-2200

Design team

Stephen Friedlaender, FAIA
Principal-in-Charge

Mario Torroella, AIA
Design Director

Philip Lewis, AIA
Project Manager

Ronald Lamarre
Arthur Duffy
Douglas Sacra
Vassilios Valaes
Lori Cowles

Client

Somerville Public Schools
(617) 625-6600, ext. 6005

Grade span
K-8

Current building capacity
450

Current building area
54,000 square feet

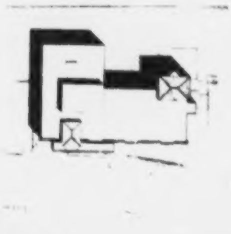
Total project costs
$7.72 million

Cost per square foot
$142

Space per student
120 square feet

Cost per student
$17,149

Completion date
June 1996



SITE PLAN

1999 CITATION AWARD WINNER

West Somerville Neighborhood School Somerville, Massachusetts

HMFH Architects, Inc.

The new K-8 West Somerville Neighborhood School replaces a building constructed in 1916. Serving a diverse population in this densely populated city near Boston, the school is both a community resource and a neighborhood schoolhouse. Its steeply sloping site places most classrooms on the south-facing front of the building and stacks the gymnasium over the cafeteria, allowing at-grade access to play areas on the higher rear of the site.

In addition to 18 regular classrooms, the school features a variety of specialized instructional spaces, including small-group instruction rooms, a computer math lab, a technology lab, plus music, art, and science rooms. The third-floor library contains a large circular, south-facing "rose window" that floods a cozy, bench-lined reading area with natural light.

A unique feature of the school is the three-story atrium surrounded by benches on each level. Greenery cascades from the upper levels and, in the first-floor lobby, real and virtual plants mingle. Intended to engage students and visitors alike, a hologram installation of woodland plants is the backdrop for this indoor garden.

The building is fully air-conditioned for year-round school and community use. It features an integrated voice-video-data network that not only serves all classrooms within the building, but also links the school to the Somerville community. ■

LOBBY

© Wayne Soverns, Jr./Interior

LIBRARY

EXTERIOR

© Anton Grass/Exterior

MIDDLE SCHOOLS
NEW CONSTRUCTION

Armstrong, Torseth, Skold & Rydeen, Inc.

8501 Golden Valley Road, Suite 300
Minneapolis, MN 55427
Web site: www.atsr.com

Paul W. Erickson, AIA
(612) 545-3731

Design team

Paul Snyder, AIA
Project Architect/Educational Planning

Tom Fabick, AIA
Project Manager

Dean Beeninga
Project Designer

Jim Lange, PE
Mechanical Engineering

Gaylen Melby, PE
Electrical Engineering

Robert Gunderson, ASLA
Landscape Architecture

Diane Taylor, CID, IIDA Associate
Interior Designer

Client

Independent School District No. 12
(612) 792-6000

Grade span
6-8

Current building capacity
1,200

Current building area
265,000 square feet

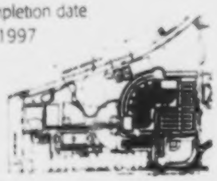
Total project costs
$25 million

Cost per square foot
$88

Space per student
220 square feet

Cost per student
$14,000

Completion date
Fall 1997



SITE PLAN

Centennial Middle School
Lino Lakes, Minnesota

Armstrong, Torseth, Skold & Rydeen, Inc.

GRAND PRIZE WINNER

Centennial School District began a new era in educational delivery as it successfully instituted the middle school philosophy at Centennial Middle School. The district moved to a middle school philosophy with this building and, with the guidance of the steering committee, defined and designed a model of its own to suit the unique needs of the students and staff. The challenges included personalizing a large building for these middle grade students to give them a sense of belonging and security.

Within each grade-level wing, houses offer flexibility and convertibility either by removing partitions to provide an open plan and individual student stations or through the ability to define more traditional educational programs. Future expansion of the facility will entail the addition of another two-house wing for 300 students, as well as space allocation for a swimming pool and locker rooms.

EXTERIOR

The building is zoned into the "student side" and the "public side," with administration centrally located to provide passive control of the building and to greet visitors. Students have access to all of the educational facilities from the student "spine." Specialized areas such as the technology plaza, family and consumer sciences, art, and industrial technology are located in close proximity for collaboration of programs and sharing of spaces and equipment. The six two-house wings unite with the spine at the student locker commons, providing a unique space for students to socialize. Student safety is improved by separating the vehicular traffic to the public side of the building and the bus corral to the student side.

Demountable and folding partitions allow for flexibility and adaptability to changing educational philosophies and staff and students' needs. Each house is designed for 150 students and arranged in three two-story wings to help personalize a large building. Each wing has two houses per floor that combine with a central faculty office/work/conference area designed to promote staff-to-staff and staff-to-student communications. These two-house groupings also share a toilet facility, multipurpose lab/classroom, and storage facilities.

Accessibility and security of the building are key issues for community use. A public side of the building was designed to attract the community and enhance the access to assembly spaces, including the state-of-the-art auditorium with seating for 600, gymnasium, and art facilities. The zoning of the building provides complete security for after-hours community use.

©RALPH BERLOWITZ

CORRIDOR DETAIL

MEDIA CENTER

Natural lighting was a critical design consideration. The large windows throughout the building, as well as the curved skylights in the media center, cafeteria, and the houses, provide natural light, an inviting learning environment, and a connection to nature while reflecting the spine of the building.

The 60-acre fringe suburban site backs onto a major interstate highway, presenting Centennial Middle School to the commuting public. Through cooperative efforts with the city and state to increase student safety, school officials and local residents routed student pedestrian traffic to the site via sidewalks and city pathways. In addition, a new city street and stoplight were developed one block from the site.

Existing wetlands were preserved to provide an environmental classroom and to enhance nature trails that wind through the forested portion of the site and athletic fields. ■

MIDDLE SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.
4000 McEwen Road, N
Dallas, TX 75244

Gary Keep
(972) 701-0700

Design team

Gary Keep
Officer-in-Charge

Billy Greene
Project Manager

Bill Wadley
Project Designer

Andy Tunnell
Project Architect

SHW Group, Inc.
Structural Engineers

Estes, McClure & Associates
MEP Engineer

Client

Sherman Independent School District
(903) 892-9115

Grade span
4-6

Current building capacity
1,000

Current building area
86,088 square feet

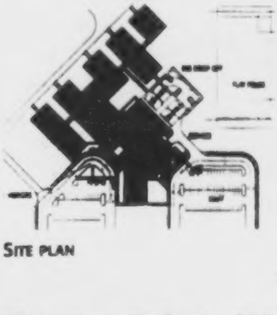
Total project costs
$7.99 million

Cost per square foot
$79

Space per student
86 square feet

Cost per student
$6,771

Completion date
September 1998



SITE PLAN

Dillingham Intermediate School Sherman, Texas

SHW Group, Inc.

CORRIDOR

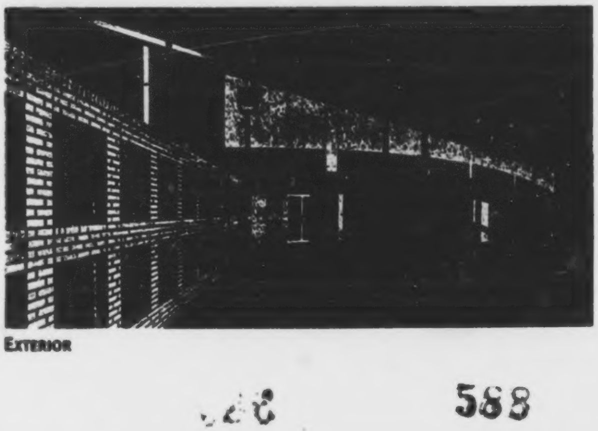
Although there has been very little growth in the Sherman Independent School District to date, several recent corporate relocations indicate that growth is a strong possibility in the near future. This prediction presented a challenge to the design team to build a campus to suit future expansion.

Dillingham Intermediate School, a re-site of an existing facility, was built to accommodate 1,100 students and was designed with expansion capabilities for two additional classroom wings. These additional wings can be added with virtually no interruption to the building's established learning environment.

The innovative design of this school building also eliminates outdoor student traffic, which greatly increases student safety and campus security. Dillingham serves fourth, fifth, and sixth graders and features a 10-classroom house, or community, for each grade level. Each community has its own restroom facilities, as well as direct access to the exterior play areas.

The design team was able to incorporate each of the following design goals established by a group of the district's teachers, parents, students, staff, and members of the community: Whereas the original building was separated into several buildings, the new school should eliminate outdoor student traffic; whereas the original building channeled traffic through academic areas, the new school should have a "main street" corridor to reduce traffic in academic areas; separate each grade level; separate activity areas from academic areas to facilitate after-hours use; use color and natural light for added spacious feel and pride in school; centrally locate library and technology labs; and locate Dillingham on the 72-acre site so that the district would have options for disposition of the unused property. ■

LIBRARY



EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

Architectural Design West, Inc.

533 S. 700 East
Salt Lake City, UT 84120
Web site: www.dsgnwest.com

Gary M. Acord, AIA
(801) 539-8221

Design team

Gary M. Acord, AIA
Principal-in-Charge

Karl Kirchgasler, AIA
Project Architect

Dennis Adderley, AIA
Production Architect

M. Keith Sorenson, AIA
Educational Facility Planner

Client

Park City School District
(435) 645-5600

Grade span
6-8

Current building capacity
500

Current building area
130,770 square feet

Total project costs
$14 million

Cost per square foot
$107

Space per student
262 square feet

Cost per student
$28,059

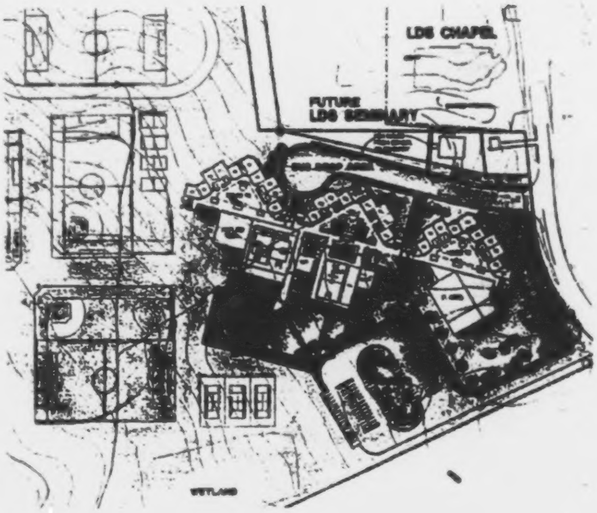
Completion date
1997

Ecker Hill Middle School
Park City, Utah

Architectural Design West, Inc.

The Ecker Hill Middle School was designed to accommodate up to 1,500 students in a phased growth program. The "house concept" master plan was developed to allow three phases of growth over the next six to eight years. The first phase includes House #1 and core facilities (applied technology, Tech Lab 2000, home economics, art studio, gymnasium with locker facilities, band/choral studios, and an electronically advanced media center with EDNET studio).

The school will eventually feature three houses (schools within the school) of 500 students each. Each house will have its own commons and administrative functions and will feature classrooms arranged in "habitat" clusters for shared educational experiences. The houses are designed along a central circulation spine for ease of supervision.



SITE PLAN

The site and natatorium were developed in cooperation with the Snyderville Basin Special Recreation District for extended public use. The natatorium features separate locker rooms, family lockers, spectator seating, and support facilities for recreational, teaching, and competitive meets on a regional and state level. Future phases will include a performing arts center and an educational technology center.

The two-story school responds to a steeply sloping site by reducing the building footprint and need to terrace ■

EXTERIOR

©William Milner Photography

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

SHW Group, Inc.

4061 Powder Mill Road, Suite 580
Calverton, MD 20705

Gary Blanton
(301) 595-7833

Design team

R.C. Garcia
Officer-in-Charge

Gary Blanton
Project Manager

Gary Lamb
Project Designer

John Forasiepi
Project Architect

Robert Chagnon
Structural Engineer

Estes, McClure & Associates
MEP Engineer

Client

Cecil County Public Schools
(410) 996-5468

Grade span
6-8

Current building capacity
590

Current building area
89,230 square feet

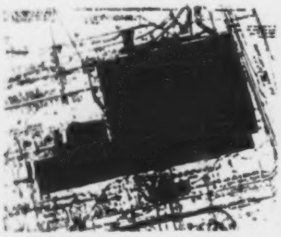
Total project costs
$6.96 million

Cost per square foot
$78

Space per student
151 square feet

Cost per student
$11,806

Completion date
April 1998



SITE PLAN

Elkton Middle School
Elkton, Maryland

SHW Group, Inc.

The Elkton Middle School renovation project was expected to be a major challenge for the architectural design team. The school consisted of two buildings joined by a common corridor. The first building was a 1936 stone, three-story high school. The second building was a more traditional brick-and-block building added in 1952.

The critical element taken into consideration when planning this renovation and addition project was that school would be in full session throughout construction. Cecil County did not have a suitable temporary location to house 600 students for an entire school year.

CAFETERIA

©ERIC TAYLOR 1998

MEDIA CENTER

School officials decided that they needed to transform the existing traditional junior high floor plan into a modern team-oriented middle school, a task not easily achievable with a building more than 60 years old. To meet this challenge, architects converted each level of the three-story building into grade-level teams centered around the library and media center, formerly the school cafeteria. The media center is not only accessible from the first floor but also conveniently entered from the second floor via a balcony area and staircase built inside the media center. This conversion of the cafeteria into a library and media center necessitated the construction of a new dining and kitchen area, accompanied by a large-group assembly area.

The second building was then changed into the new general office and support areas such as fine and performing arts, life management, and technology. This building was organized around the existing gymnasium and did not require any additions of new space. ■

ELKTON
MIDDLE SCHOOL

EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

The Stichler Design Group, Inc.
2800 N. 44th Street, Suite 500
Phoenix, AZ 85008
Web site: www.stichler.com
Scott Beck, AIA
(602) 956-8844

Design team

Scott Beck, AIA
Senior Project Manager

Ray Del Zotto
Project Architect

Xiaojun Lin
Assistant Project Architect

Norman Lewis
Construction Administration

Territorial Engineers, Inc.
Civil

KPFF Consulting Engineers
Structural

LSW Engineers, Inc.
Mechanical/Plumbing/Electrical

McConaghie Associates
Landscape

Client

Bullhead City Elementary School District #15
(520) 758-3961

Grade span
6-8

Current building capacity
600

Current building area
63,259 square feet

Total project costs
$6 million

Cost per square foot
$96

Space per student
105 square feet

Cost per student
$10,085

Completion date
August 1998

Fox Creek Junior High School Bullhead City, Arizona

The Stichler Design Group, Inc.

Fox Creek Junior High School faced unique challenges in responding to a severely sloping desert site and intense desert climate, which often put Bullhead City in the news as the hottest spot in the country, while maintaining a friendly, open campus environment that is a pleasant place for students and faculty to learn and teach.

The campus plan of five buildings is arranged to focus the pedestrian circulation toward a pleasant, protected interior courtyard. The semicircular arrangement of buildings takes advantage of surrounding mountains and the Colorado River by opening up expansive views between buildings.

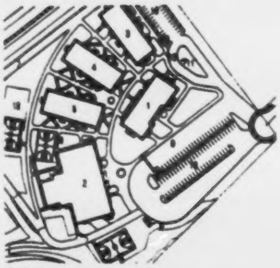
Exterior materials are natural finish, split-face, and smooth integrally colored concrete block with prefinished architectural metal roofing, soffits, and fascias. Deep roof overhangs shade operable windows provided in all classrooms to take advantage of the many milder days when natural ventilation is desirable. All areas are air-conditioned with individual HVAC systems.

A true multipurpose building provides locker rooms and bleacher seating for athletic events as well as for performances on the stage. Rubber flooring allows the space to function as a lunchroom served by a full preparation kitchen. The music room is coupled to the stage by an operable wall to allow the combining of the two. ■

©SCOTT BECK

EXTERIOR

AUDITORIUM



SITE PLAN

EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

Tappé Associates, Inc.

Six Edgerly Place
Boston, MA 02116

Lynn Ellen Smith
(617) 451-0200

Design team

A. Anthony Tappé, FAIA
Principal-in-Charge

Jeffrey R. Davis, AIA
Associate-in-Charge

Brooke S. Trivas
Project Manager

Client

City of Gardner, Massachusetts
(978) 632-1000

Grade span
6-8

Current building capacity
747 (with core for 925)

Current building area
116,000 square feet

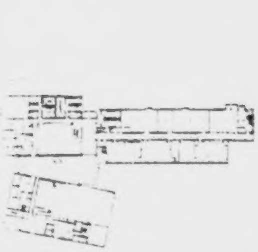
Total project costs
$15.4 million

Cost per square foot
$133

Space per student
155 square feet

Cost per student
$20,616

Completion date
September 1997



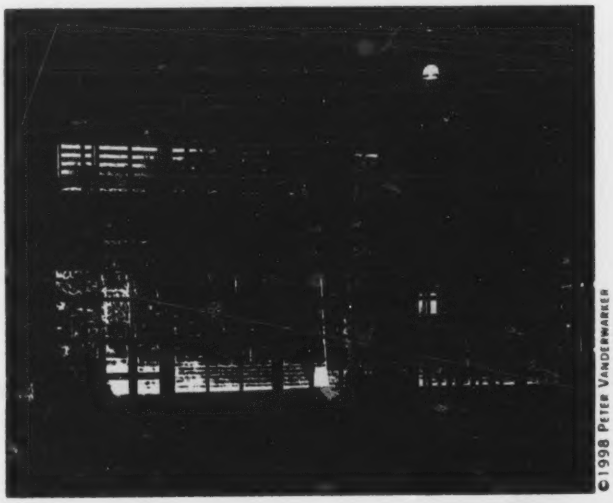
FLOOR PLAN

Gardner Middle School
Gardner, Massachusetts

Tappé Associates, Inc.

As the first component of a five-building educational master plan, Gardner Middle School supports the middle school concept of team teaching and provides a community resource. Tucked within the existing wetlands of the high school site, the new building for grades 6-8 creates a campus for grades 6-12, with shared outdoor athletic facilities.

A major challenge of the project was designing a 116,000-square-foot building within strict site parameters. The buildable area was limited due to an irregular site, a 35-foot drop in grade, encroaching wetlands, and existing playing fields. The final design highlighted the surrounding natural environment by ensuring the primary views were not toward parking or vehicular circulation, but rather across the ball field or courtyard into the adjacent wooded areas.



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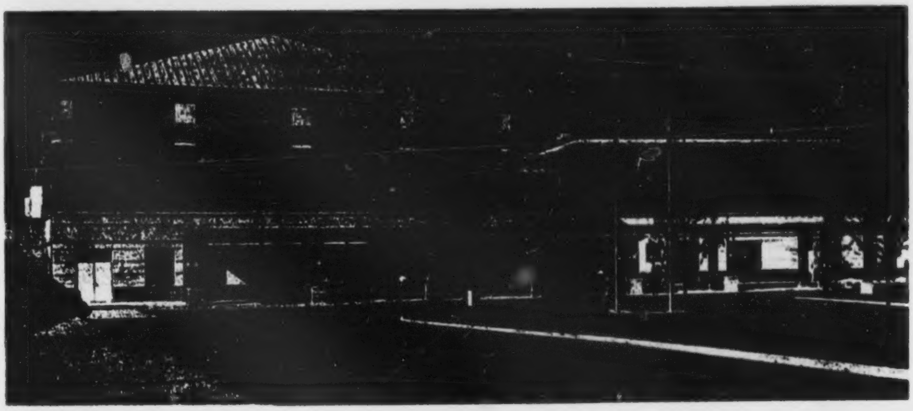
ENTRY

EXTERIOR 1

The design concept of a three-part facility provides for optimum academic and community use. The facilities requiring public access (gymnasium, library, cafetorium, and computers) are located in the front of the facility. Each grade includes two teams and a shared project classroom housed on a separate floor in the secured, four-story, academic wing. The base of the academic wing houses the core facilities not requiring public accessibility.

The design solution overlaid the needs of the new educational program, public space requirements, a challenging site, and budgetary constraints to create a facility that demonstrates Gardner's first step toward its renewed commitment to education. ■



EXTERIOR 2

MIDDLE SCHOOLS
NEW CONSTRUCTION

KKE Architects

300 First Avenue North
Minneapolis, MN 55401

Ron Erickson, AIA
(612) 339-4200

Design team

Brian J. Fitzgerald
Project Manager

Todd Messerli
Planner

Michael Eckardt
Project Designer

Roxanne DeCoster, CID
Interior Designer

Doug Lingren, CCS
Project Specifications

Fred Kirschman
Eric Erdahl

Client

Elk River Area Schools
ISD #728
(612) 241-3401

Grade span
5-9

Current building capacity
700 each (classrooms)
900 each (core facilities)

Current building area
138,100 square feet per school

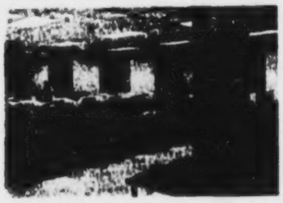
Total project costs
$14 million per school

Cost per square foot
$102

Space per student
197 square feet

Cost per student
$20,000

Completion date
August 1998



COMPUTER LAB

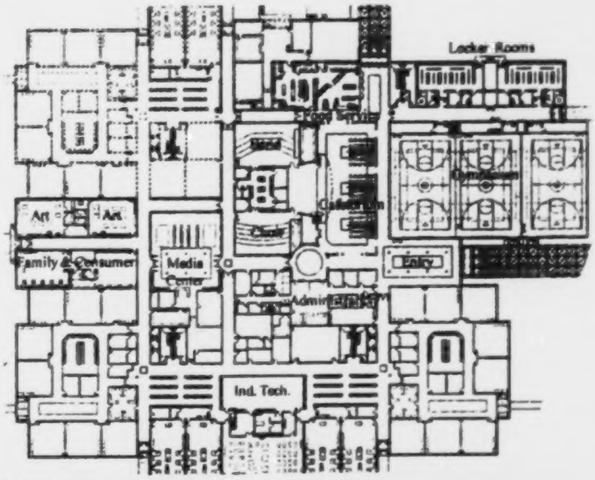
ISD #728 Junior High School Prototype Rogers, Minnesota and Zimmerman, Minnesota

KKE Architects

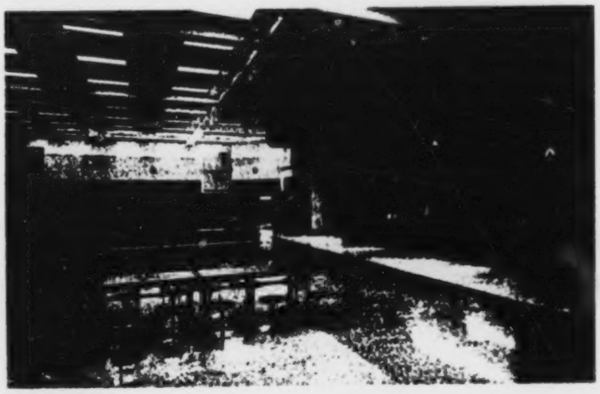
KKE Architects designed a prototype multigrade facility in two distinct communities within the Elk River Area Schools District. Each facility can accommodate a grade 5-9 configuration, with flexible programs allowing for fluctuations in this growing district's needs. Current building capacity is 700 students with core facilities (media center, gym, kitchen, cafetorium, and applied education areas) designed to accommodate 900 students. The layout also allows for easy and efficient planned future expansion, including a third classroom house, a pool, additional gymnasium stations, and, at one location, a community center created in joint venture with the city.

MAIN ENTRY

KKE was challenged with creating balanced, equitable facilities in two unique communities while complying with strict budget and time constraints. In response, KKE led a participatory process that included a steering committee, education planning committee, and two community-based planning committees. Through this process the committees saw the impact of their decisions on the needs and desires of other stakeholders. This sharing of viewpoints helped to establish a common ground to arrive at design decisions.



FLOOR PLAN



CAFETORIUM

The prototype provides three "houses" of two "families" each. Each house consists of flexible classrooms grouped around computer lab and resource areas. Networked computer stations and video monitors connect each classroom to a central media hub. Science/technology classrooms are incorporated into each house. Circulation is designed to disperse student traffic, as opposed to converging in a central corridor or "main street" concept.

The houses are separated by applied education spaces: arts, family and consumer science, music, and industrial technology (shop, lab, and lecture spaces). A cafetorium (cafeteria/auditorium) is incorporated to maximize the use of flexible space. The stage/performance area serves as the general music room during school hours. Sensitive to community use, a progressive system of security and circulation zones can be opened after hours for public athletic events, educational uses, or performances. ■

MIDDLE SCHOOLS
NEW CONSTRUCTION

Wakely Associates
Mt. Pleasant, Inc.
131 S. Main Street
Mt. Pleasant, MI 48858
John P. Jensen, AIA
(517) 773-9945

Design team

John P. Jensen, AIA
Principal-in-Charge

Donald A. Haeger, AIA
Project Manager/Field Representative

John E. Haas, AIA
Designer

Earl Hartman, PE
Mechanical Engineer

Dion Dixon, PE
Electrical Engineer

Client

Hartland Consolidated Schools
(810) 632-7481

Grade span
7-8

Current building capacity
750

Current building area
123,160 square feet

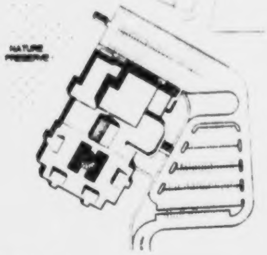
Total project costs
$12.73 million

Cost per square foot
$103

Space per student
164 square feet

Cost per student
$16,975

Completion date
September 1998



SITE PLAN

Hartland Middle School
Mt. Pleasant, Michigan

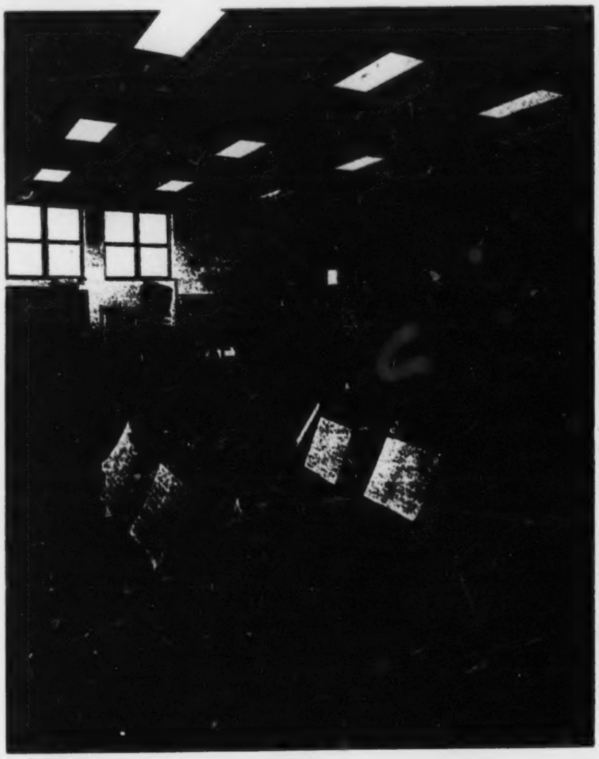
Wakely Associates Mt. Pleasant, Inc.

The new Hartland Middle School is the first of four master-planned schools to be placed in the Hartland Educational Complex Park—a vast natural setting for learning interwoven with large wetland areas. The educational park is being developed to provide ecology study, nature observation, walking trails, and visual relief in a quiet learning zone.

Hartland is a fast-growing suburban community strategically situated for commuting in all four directions. The community, a major stagecoach stop in the last century, is steeped in history. Many surrounding structures reflect this heritage. Designed by the community with historic idioms from these surrounding historical structures, the new school fits in well with its nostalgic brick, limestone ornament, and curved top windows.

A large entrance canopy welcomes students, staff, and visitors to a warm commons/cafeteria area. Structural steel trusses up-lit by efficient metal halide fixtures provide the visual theme of exposed structure, which is incorporated throughout the building.

Classrooms are clustered in four room pods, each with a minicomputer lab and staff planning space; natural light abounds through large exterior windows and overhead clerestory lights. Two clusters of science labs are adjacent and connect to landscaped courtyards.



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BAND ROOM

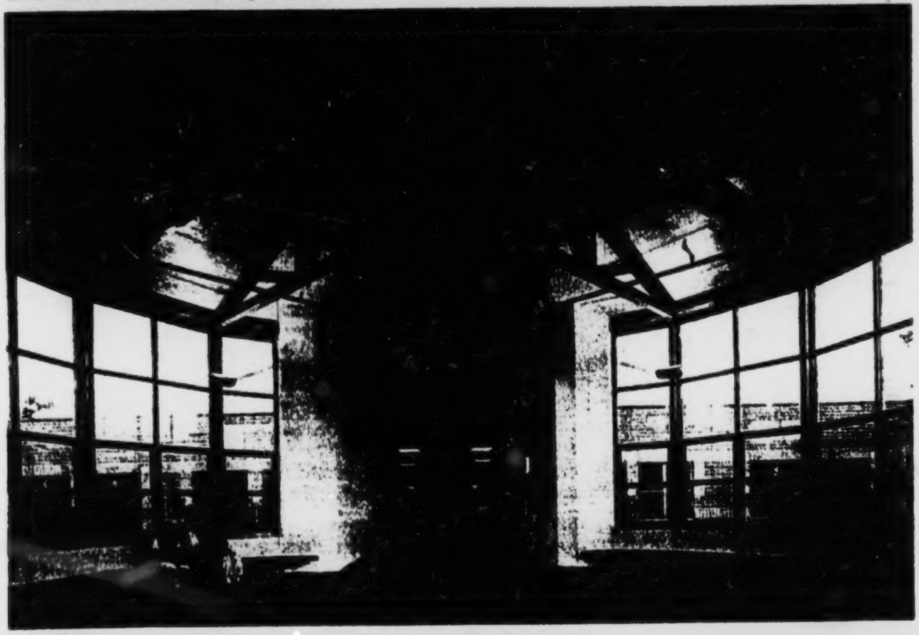
A quiet round Kiva provides a place for one-on-one tutoring, small-group learning, and casual student grouping. A continuous bench and glass wall view the landscaped courtyards. The restful, contemplative nature of this design was suggested by the special needs staff.

The naturally lighted media center is centrally located and easily accessible. Its layout provides efficient staff supervision visually and accessibly. Computer stations are available for reference search, research, and independent study. Adjacent are two computer application labs.

There is dual use of the auxiliary gymnasium for physical education as well as fine arts performance and student assembly. Portable seating

OVERALL VIEW WITH FRONT ENTRANCE

Entrance at student commons/cafeteria



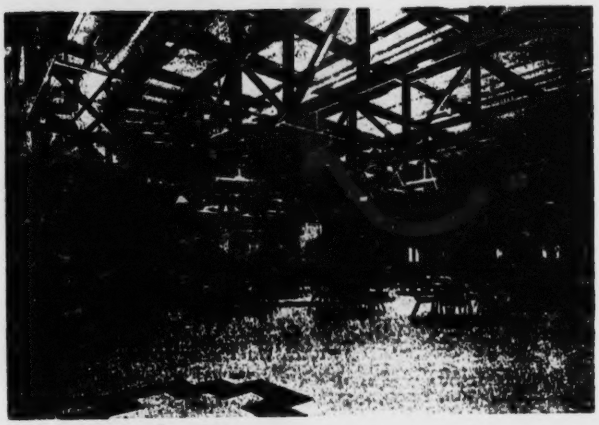
Kiva room

and a fully equipped stage can quickly turn this gym into a performance area. The adjacent competition gym seats 800 and enables a number of activities and competitions to be held simultaneously.

Tile floors, brick and block walls, and carpeted classrooms provide durable finishes for active, exploring middle schoolers. Steel-faced demountable partitions readily accommodate future changes in the classroom pods.

The HVAC system utilizes a four-pipe hotwater distribution with fan coils. The building is fully cooled. A voice/video/data technology distribution system is networked throughout the building and into all other district buildings. ■

Competition gym



Student commons/cafeteria

MIDDLE SCHOOLS
NEW CONSTRUCTION

Albert & Associates Architects, PA

514 Main Street, P.O. Box 1567
Hattiesburg, MS 39403

Larry A. Albert, AIA
(601) 544-1970

Design team

Albert & Associates Architects, PA
Finlo Construction Co., Inc.
General Contractor

Watkins-O'Gwynn Consulting
Electrical Engineers, PA

Eldridge & Associates, PA
Mechanical Engineers

Post & Witty Structural Engineers
Clearpoint Consulting Engineers, PA
Civil Engineers

Fisher & Associates
Food Service Consultants

Client

Hattiesburg Public School District
(601) 584-6283

Grade span
7-8

Current building capacity
850

Current building area
96,000 square feet

Total project costs
$8.56 million

Cost per square foot
$89

Space per student
113 square feet

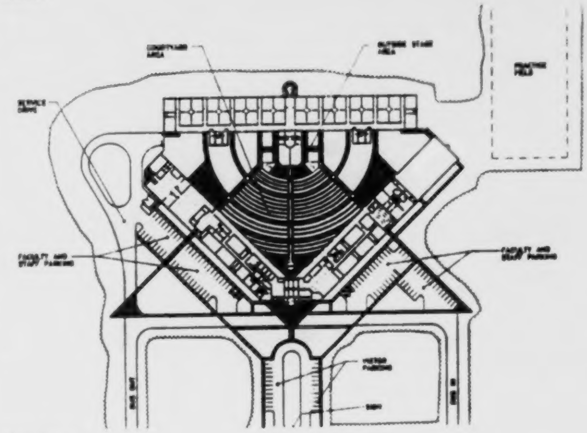
Cost per student
$1,008

Completion date
August 1999

Hattiesburg Middle School
Hattiesburg, Mississippi

Albert & Associates Architects, PA

ENTRY

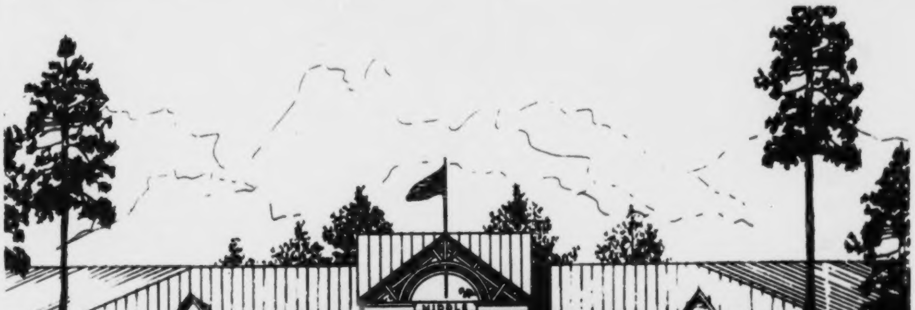


SITE PLAN

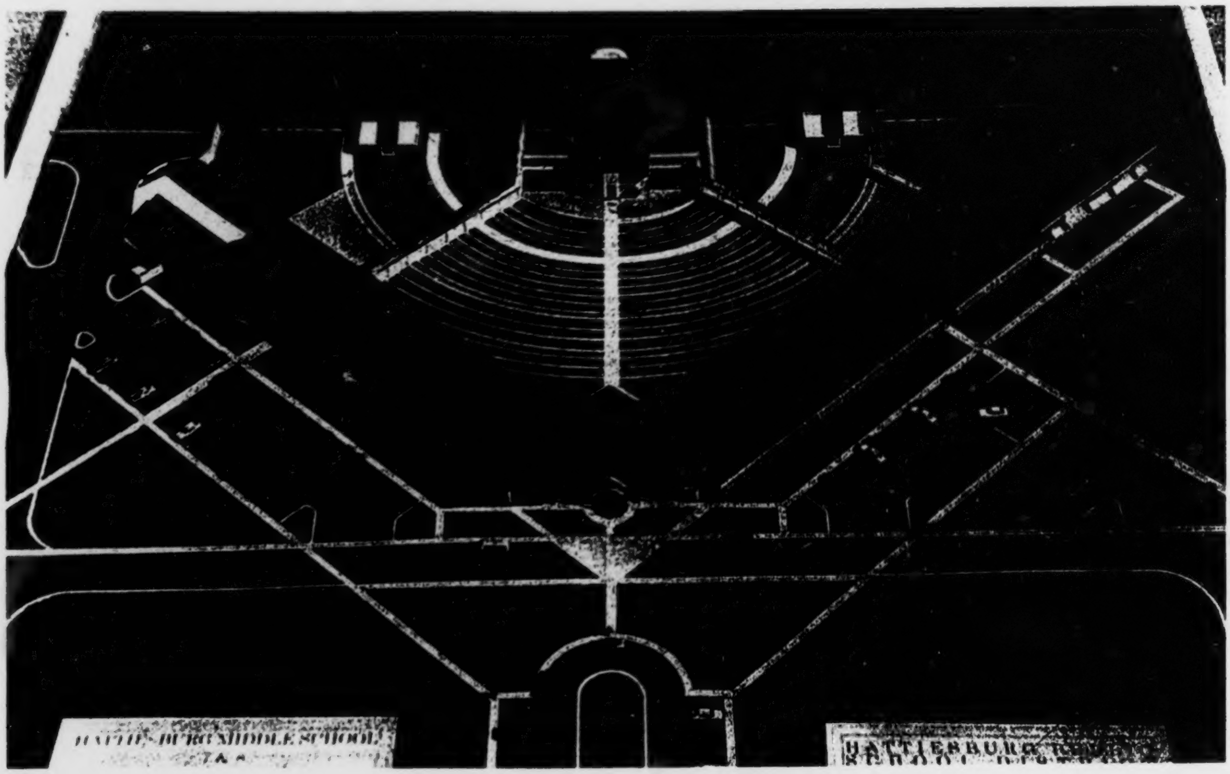
The Hattiesburg Public School District embarked upon an ambitious effort to be released from federal court supervision, to conduct a scientific survey of its patrons, and to develop a reorganization plan based upon the findings. Calling for K-6 neighborhood elementary schools and a new middle school, the plan was approved by the school board in March 1998 for implementation in August 1999.

In addition to meeting a 16-month time line from design to construction completion, the school team wished to develop a middle school facility that would limit outside access, enhance student supervision and school safety, promote collaboration among faculty, and minimize student movement.

To address these issues, the design team developed the basic plan with a triangular arrangement of three buildings surrounding a courtyard that provides a secure, friendly, easily monitored school environment. To limit access, students, staff, and visitors must enter the complex through a main gate. Three major intersections hold programmed assembly areas—the cafetorium, the library, and the gymnasium. The library and the main office are on either side of the breezeway at the entrance. The three buildings



ELEVATION

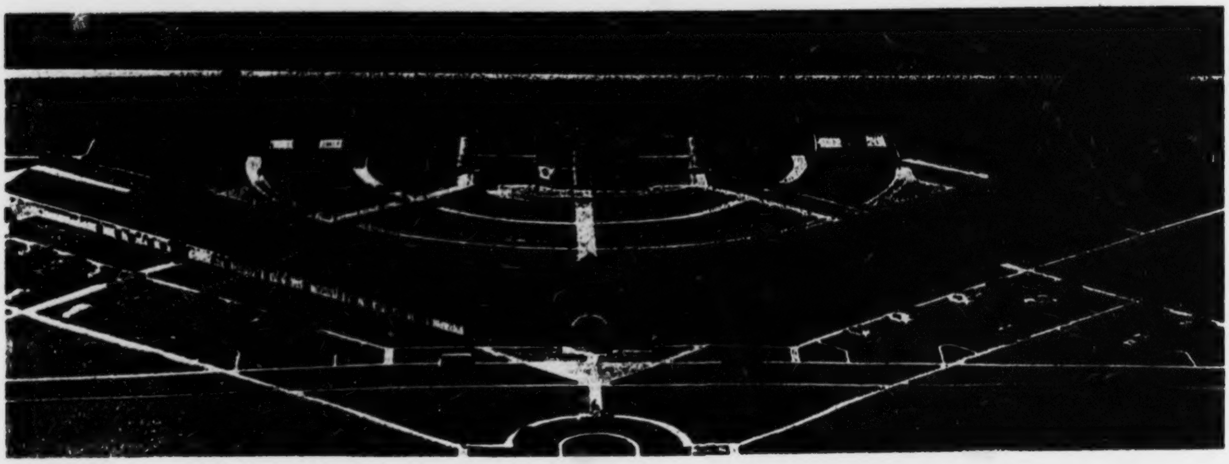


AERIAL

open onto the central courtyard with an amphitheater for student circulation and assemblies.

The solution for minimizing students movement and facilitating teamwork among teachers was found, in part, in the configuration of the building. The back wing of the triangle contains two large art studios and classrooms set in pods of four. This arrangement makes transition between classes easy for students and allows teachers the opportunity to work together. Teacher workrooms are strategically placed at each end of the classroom wing. Because the workrooms look upon the courtyard, teachers may accomplish classroom preparations while maintaining visual contact with the students' interactions and circulation. Directing the entrance to these workrooms between the potentially problematic student restrooms provides additional supervision. The assistant principal's office and detention room in this wing provide space for the administration to discipline from within as needed.

Building the new school within the 16-month period was crucial. District officials and the design team worked diligently to develop the basic plan. While it may take years to complete construction on many schools, on this project, plans were developed, specifications written, land purchased and cleared, bids awarded, and construction begun between April and August 1998. The new middle school for Hattiesburg will be completed by August 1, 1999. ■



EXTERIOR

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MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

Kaeyer, Garment & Davidson Architects
285 Main Street
Mount Kisco, NY 10549
Russell A. Davidson, AIA
(914) 666-5900

Design team

Richard E. Kaeyer, FAIA
Partner-in-Charge/Design

Russell A. Davidson, AIA
Partner-in-Charge/Construction

Michael Messinger
Project Architect

Paul Checco
Designer

Sumi Fasolo
Designer

Susan Costrini
Interiors

Client

Katonah-Lewisboro Union Free School District
(914) 763-5000

Grade span
6-8

Current building capacity
915

Current building area
136,275 square feet

Building area before addition/renovation
100,518 square feet

Total project costs
$8 million

Cost per square foot
$135

Space per student
149 square feet

Cost per student
$8,798

Completion date
September 1998

John Jay Middle School
Cross River, New York

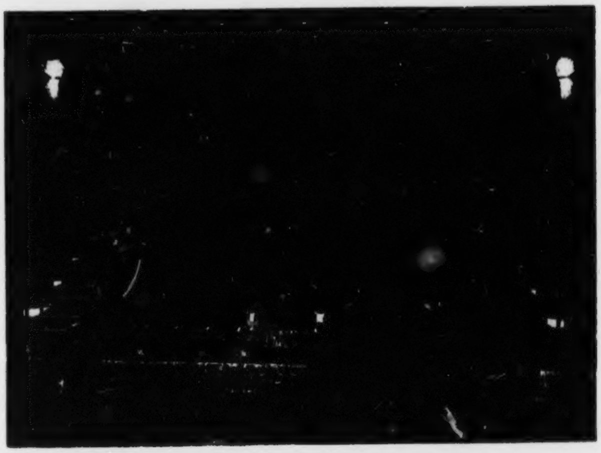
Kaeyer, Garment & Davidson Architects

John Jay Middle School is part of the Katonah-Lewisboro Union Free School District in suburban Westchester County, New York.

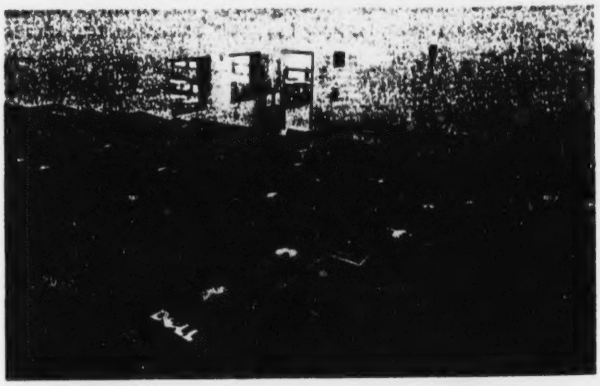
The original building is a poured-in-place concrete structure built in 1965. An addition with classrooms and a library was added in 1978. Kaeyer, Garment & Davidson Architects designed a second addition for the building, completed in September 1998. This new addition is framed in steel and clad with white concrete masonry units to match the original white glazed brick.

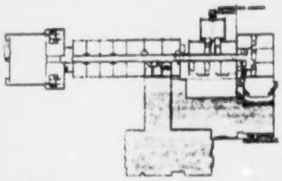
The designers overcame the severe limitations of a steeply sloping site and an existing building with six different floor levels. An elevator and three wheelchair lifts were added to make the building fully compliant with the Americans with Disabilities Act.

The new theater is stepped down one full story to take advantage of the steeply sloping site. The new library is now centrally located and more than twice the size of the old library space. The library, the entire existing building, and the new building are fully wired for computer and Internet access. A stepped-floor computer instruction room with state-of-the-art equipment is contained within the new library; it is intended to double as an evening adult education and meeting space. ■


NEW AUDITORIUM

LIBRARY


NEW COMPUTER ROOM


SITE PLAN

MIDDLE SCHOOLS
NEW CONSTRUCTION

SHW Group, Inc.
4061 Powder Mill Road, Suite 580
Calverton, MD 20705
Gary Blanton
(301) 595-7833

Design team

R.C. Garcia
Partner-in-Charge

Gary Lamb
Project Designer

Paul Layer
Project Manager

Joe Craddock
Structural Engineer

Milt Countryman
WEDGCO, MEP Engineer

Client

Montgomery County Public Schools
(301) 279-3133

Grade span
6-8

Current building capacity
1,000

Current building area
149,728 square feet

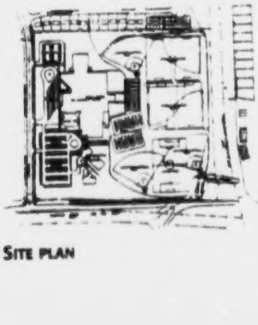
Total project costs
$14.38 million

Cost per square foot
$96

Space per student
159 square feet

Cost per student
$12,659

Completion date
September 1997



SITE PLAN

Kingsview Middle School Montgomery County, Maryland

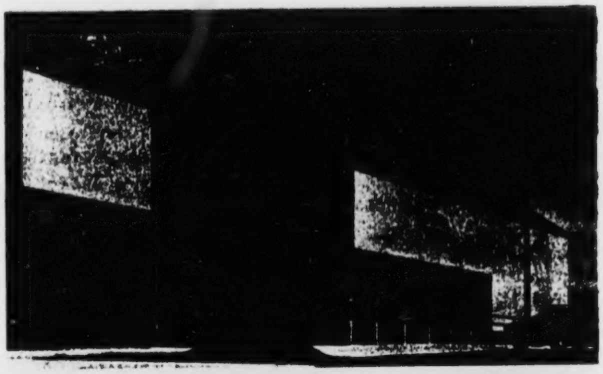
SHW Group, Inc.

In its master plan for 1994-99, Montgomery County included provisions for a new middle school, community center, and outdoor pool for the Germantown area. A 30-acre site was recommended for the middle school. Because the school needed only 20 acres, it was suggested that the remaining 10 acres incorporate Montgomery County Government's plan for a recreational facility, creating a massive joint project with Montgomery County Public Schools.

The combination of these two facilities is proving to be an extremely cost-effective design. Substantial savings have resulted from the need to develop only one site rather than two separate locations. The educational and recreational facilities share main mechanical, electrical, fire, communication, and security systems. Mechanical systems are designed so that space used during the summers and after hours can be heated and cooled without having to heat and cool the entire facility, generating yet another operational cost reduction.

While the community center is structurally integrated with Kingsview Middle School, each maintains its own dedicated entryway. Kingsview's design concept remotely locates the academic areas in the west wing away from the community center. Public spaces, such as the gymnasium, cafeteria, band hall, and choir rooms, are located in the east wing adjacent to the community center to allow easy access for shared activities between the two facilities.

The community center includes a gymnasium, social hall, arts room, game and exercise rooms, conference spaces, and administrative and commons areas. Outdoor areas consist of a bathhouse, 50-meter lap pool, leisure pool, wading pool for toddlers, and a common lounging area. ■



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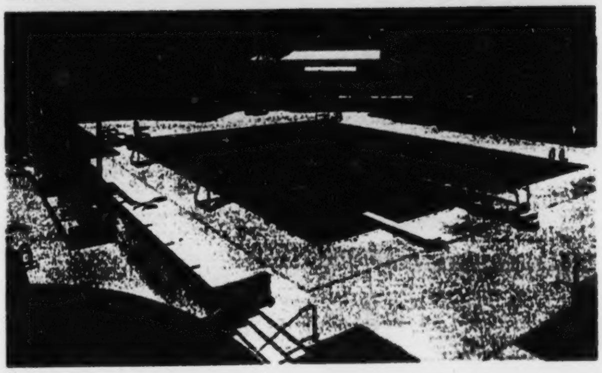
EXTERIOR



POOL

CORRIDOR

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

Ciaccio Dennell Group

1014 Douglas on the Mall
Omaha, NE 68102-1813

James Dennell
(402) 346-8754

Design team

David Ciaccio
President

James Dennell, AIA
Vice President

Kevin Schluckebier
Paul Kelly, AIA
Wayne Borer, AIA
Steve Mainelli

Client

Lexington Middle School
(308) 324-4681

Grade span
6-8

Current building capacity
600

Current building area
102,030 square feet

Building area before addition/renovation
74,730 square feet

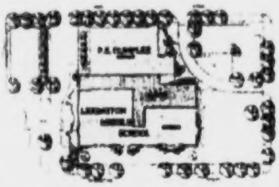
Total project costs
$6.5 million

Cost per square foot
$63

Space per student
107 square feet

Cost per student
$10,800

Completion date
May 1998



SITE PLAN

Lexington Middle School
Lexington, Nebraska

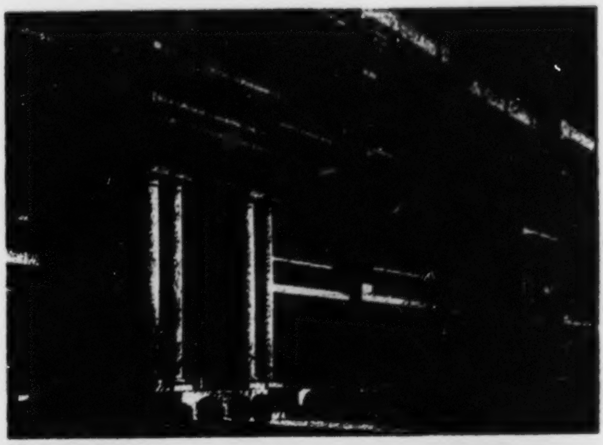
Ciaccio Dennell Group

The 85-year-old structure was preserved at a cost of 75 percent of new construction. Renovation of the junior high (grades 7 and 8) created a middle school for grades 6 through 8. The existing three-story structure and additions provided space where it was needed, creating a comprehensive relationship of spaces that promotes a true school-within-a-school operation.

Each grade level has its own floor with a self-contained, two-team pod. Classrooms cluster around a multipurpose/computer room, conference/testing space, and teacher planning area. A separate entrance and locker commons are provided for each team.

Outside the pods, the original undersized classrooms were combined and remodeled for all special curriculum spaces. The removal of classroom walls and the integration of corridors on the upper floors accommodated the industrial technology and life skills labs.

The auditorium stage (a convertible gym in the 1920s) yielded depth and volume to create spaces for music on the first floor and a media center located between the second and third floors. Enclosing space between existing buildings provided the remaining space for the media center and created space for a cafeteria and entry commons. ■



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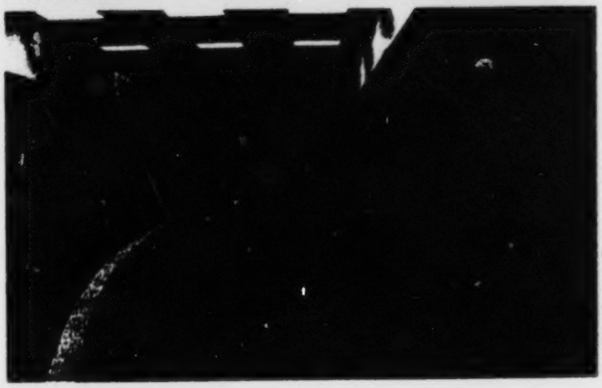
WEST EXTERIOR



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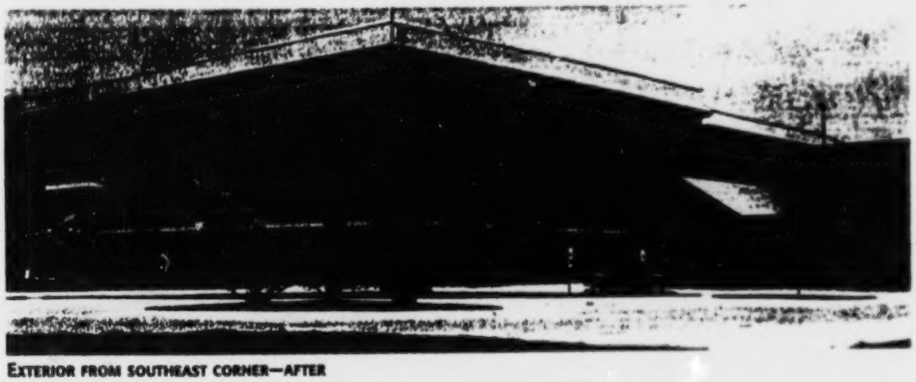
ENTRY COMMONS



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EXTERIOR FROM SOUTHEAST CORNER—AFTER

MIDDLE SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.

3750 Priority Way, S. Drive, Suite 110
Indianapolis, IN 46240
Web site: www.fhai.com

William E. Payne, AIA
(317) 848-0966

Design team

Daniel R. Mader, AIA
Owner-in-Charge

William E. Payne, AIA
Project Manager

Michael K. Schipp, AIA
Project Architect

Mark D. Murphy
Project Captain

David D. Frash, PE
Structural Engineer

Alvaro Villalta, PE
Electrical Engineer

Kenneth D. Cook, EIT
Mechanical Designer

Jeffery D. Wright, PE
Civil Engineer

Nancy J. Christoph, ASLA
Landscape Architect

Dennis L. Hacker, AIA, CCS
Specifications

Client

Metropolitan School District of
Pike Township
(317) 293-0393

Grade span
6-8

Current building capacity
900

Current building area
187, 922 square feet

Total project costs
$18.75 million

Cost per square foot
$100

Space per student
209 square feet

Cost per student
$20,834

Completion date
January 1997

Lincoln Middle School Indianapolis, Indiana

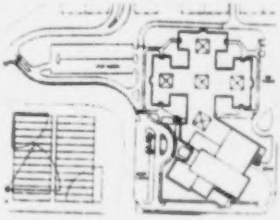
Fanning/Howey Associates, Inc.

CITATION AWARD WINNER

When entering this new middle school for 900 students in grades 6-8, you first come upon the administration area. It houses the reception area, conference room, workroom, storage area, small bookstore, guidance area, and various offices. You then come to the 6,500-square-foot main commons area, which is linked to the media center by a hallway. As you travel down this hallway, you pass the special education classroom, as well as the three art classrooms, which share a kiln, office area, storage area, and display area.

The 7,800-square-foot media center includes a skylight to allow natural light to enter the space, a computer lab, office, media retrieval area, two conference rooms, and storage areas. Radiating from the media center are three academic wings that are based on interdisciplinary team teaching and include two teams per grade level. A science lab is included in each team. Each grade level wing also includes two computer labs, a conference room, a group instruction room, 10 regular classrooms, storage rooms, and restrooms.

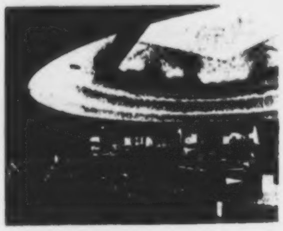
Going the other direction from the common areas, you enter the public use space of the building. This includes a lecture/commons area and auditeria (seating 300 for cafeteria-style eating and 600 for performances); a full-service kitchen; wrestling room; a main gymnasium of approximately 10,000 square feet; a physical education gymnasium; locker/shower rooms; two home economics classrooms/labs; two industrial technology classrooms/labs; and a music suite with band room, choral room, and orchestra room.



SITE PLAN

AUDITORIUM

EXTERIOR



MEDIA CENTER

The main structure is structural steel frame on concrete piers and grade beams. The physical education and adjacent spaces are load-bearing masonry walls. The predominant roof structure is low slope steel bar joists. Some high-pitched roof areas have been introduced to break up the roof lines. The exterior walls are structural steel studs with a masonry wainscot and EIFS above. Operable (projected) and fixed aluminum windows with a custom Kynar finish are used. The interior walls are gypsum wallboard with metal studs with ARC in the corridors, vinyl fabric wall covering in classrooms and offices, and painted concrete masonry units in activity spaces.

Carpet is the predominant floor finish, while terrazzo tile is used in the commons and entryways. The main gym floor is a resilient wood type; the auxiliary gym is a poured urethane floor at the owner's request.

The mechanical system is a four-pipe distribution system, VAV delivery (one box per two classrooms) with incremental boilers and an air-cooled condensing unit. ■

Manhattan Beach Middle School
Manhattan Beach, California

HMC Architects

MIDDLE SCHOOLS
NEW CONSTRUCTION

HMC Architects

3270 Inland Empire Blvd.
Ontario, CA 91764
Web site: www.hmcgroup.com
Kevin Wilkeson, AIA
(800) 350-9979

Design team

Jim Gilliam, AIA
Principal-in-Charge

Kevin Wilkeson, AIA
Project Director

Jim Wurst, AIA
Project Architect

Ed Salisbury
Project Architect

Client

Manhattan Beach Unified School District
(310) 725-9050

Grade span
6-8

Current building capacity
1,200

Current building area
110,000 square feet

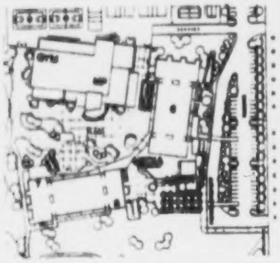
Total project costs
$16 million

Cost per square foot
$145

Space per student
92 square feet

Cost per student
$13,000

Completion date
September 1998

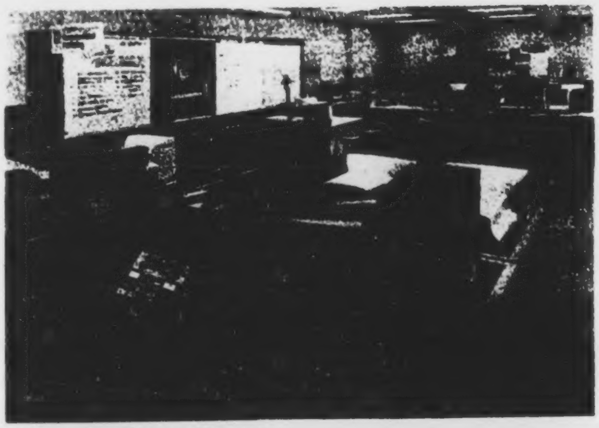


SITE PLAN

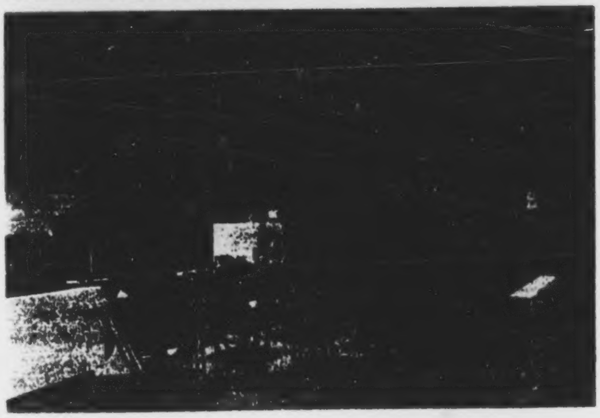
Playing fields are located for maximum community access adjacent to existing youth sports facilities and the community park. They are separately gated for community use when the rest of the campus is closed. Additionally, both the campus media center and the multipurpose room are designed with community events in mind; the multipurpose room can be opened to the adjacent gymnasium for larger functions.

The middle school program is based on teams of teachers with a focus on a project-based, interdisciplinary curriculum. Teams typically will be of three teachers and have specialists in English, science, and social science. The flexible design will support a variety of instructional approaches, including grade-level teaming and schools-within-a-school, as well as more traditional concepts.

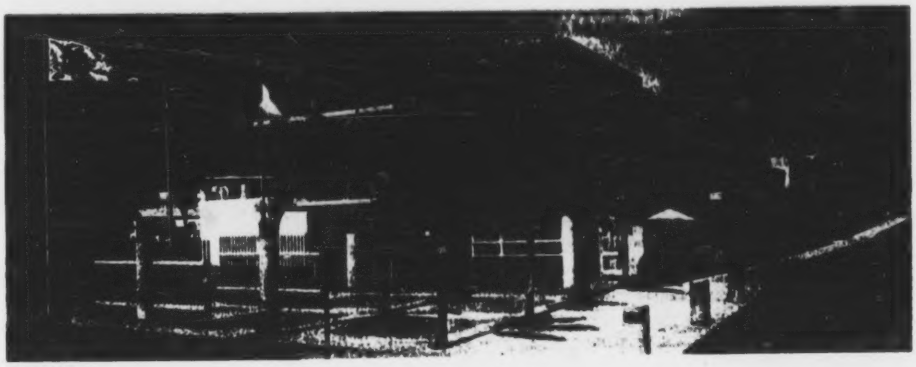
To support the middle school concepts of teaching in teams and interdisciplinary and developmental learning, activity areas allow for increased collaborations. At the same time, activity areas and their spatial relationships support the district's direction toward site-level decision making, which permits a variety of program strategies to be used simultaneously. ■



APPLIED TECHNOLOGY CLASSROOM



EXTERIOR



EXTERIOR

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

SCHENKELSHULTZ

9100 Keystone Crossing, Suite 700
Indianapolis, IN 46240
Web site: www.schenkelshultz.com

Pamela Heeke
(317) 574-6975

Design team

Thomas G. Neff, AIA
Principal-in-Charge

Geoffrey A. Lisle, AIA
Project Architect

Anna Marie Burrell, AIA
Architect

Client

Greenfield-Central CSC
(317) 462-4434

Grade span
6-8

Current building capacity
400

Current building area
76,000 square feet

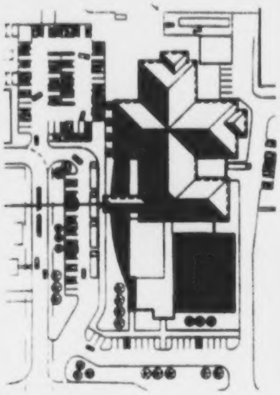
Total project costs
$5.6 million

Cost per square foot
$74

Space per student
190 square feet

Cost per student
$14,000

Completion date
August 1997



SITE PLAN

Maxwell Middle School
Maxwell, Indiana

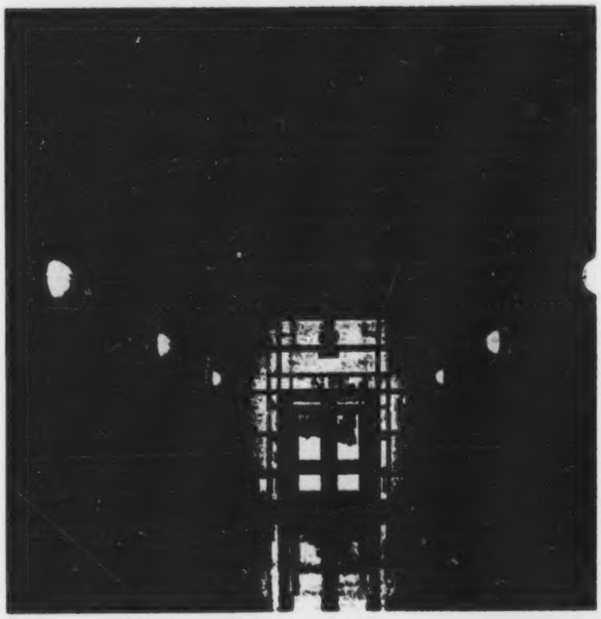
SCHENKELSHULTZ

The design challenge to transform Maxwell Middle School involved several issues that required a cooperative team effort from both the school system and the architectural team. The following issues/goals were primary to the solution:

1. Expanding building capacity from 150 to 400 students.
2. Maintaining existing school operations during construction.
3. Reorganizing the site within the existing physical constraints.
4. Reusing existing facilities as much as possible.

The project team's initial step was to analyze the existing building and site. By reviewing how the existing building and site were being utilized, the project team was able to develop an overall solution. The key to this solution was to reuse the existing gymnasium and cafeteria and locate the new construction to take advantage of the existing site. Constraints required a two-story solution, thus minimizing the building addition footprint.

By phasing the project in this manner, 90 percent of the new construction could be completed the first year with no school disruption. This left the remodeling of the gymnasium and cafeteria (future band/music room) and exterior site work to be completed the second summer, prior to the start of school. The overall success of the project was exceeded only by the community's involvement and acceptance of the final result. ■



ENTRY

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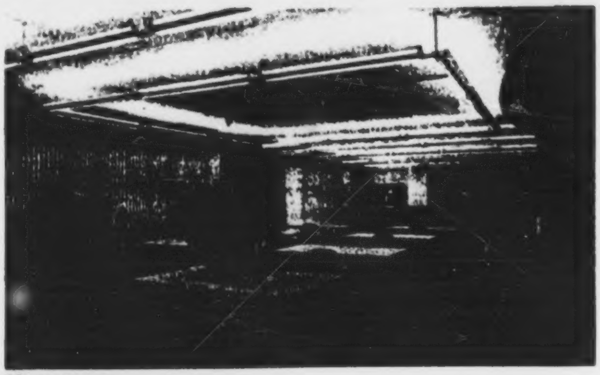


MEDIA CENTER

EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.
114 York Street
Michigan City, IN 46361
Web site: www.fhai.com

Douglas M. Wickstrom, AIA
(219) 872-0635

Design team

Lee J. Brockway, AIA
Principal-in-Charge

Ronald H. Fanning, AIA, PE, REFP
Backup Principal-in-Charge

Douglas M. Wickstrom, AIA
Project Manager/Designer

Richard G. Boyd, AIA
Project Architect

James K. Perkins, ASLA
Director Site Planning

Stuart Franzen, ASLA
Landscape Architect

Charles A. McCoy
Mechanical Systems Designer

Jennifer L. McDonnell
Interior Designer

Edward J. Sawa
Construction Administrator

Client

Grade span
5-6

Current building capacity
650

Current building area
80,167 square feet

Total project costs
$6.97 million

Cost per square foot
$87

Space per student
123 square feet

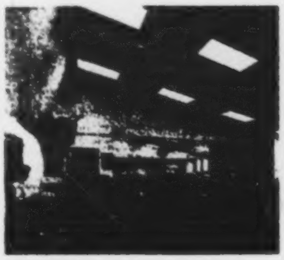
Cost per student
$10,717

Completion date
August 1994

Meridian Middle School
Buffalo Grove, Illinois

Fanning/Howey Associates, Inc.

This two-story middle school houses 650 students in grades 5 and 6. The development includes separate bus access and visitor parking, which aides site circulation. This building is constructed with a sloped, shingled roof to recall a residential appearance.



CLASSROOM

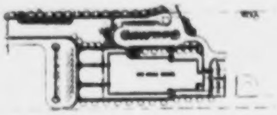
MEDIA CENTER

The two-story media center is centrally located. It provides an open and inviting atmosphere for all students and allows good access from other learning spaces. The commons area is located on the second floor of the media center to offer a place for students to gather, as well as to provide a space for small-group instruction. The academic classrooms are placed at the perimeter of the building with 13 classrooms on each floor.

The public-use portion of the building contains a 6,027-square-foot gymnasium, cafeteria, music facilities, and commons areas. The cafeteria has a folding wall that opens into the gymnasium and can be used as a stage, with the gymnasium providing a seating area for large-group activities. The building is segregated into public spaces and academic spaces to allow for evening use without opening the entire building.

Folding walls between the classrooms offer flexibility and allow for the provision of variable-sized group instruction. Each classroom is provided with extensive cabinet storage for teaching/learning materials. ■

EXTERIOR



SITE PLAN

MIDDLE SCHOOLS
NEW CONSTRUCTION

Vetter Johnson Architects, Inc.
5101 Highway 55, Suite 2000
Minneapolis, MN 55422
Mark Vetter
(612) 545-6500

Design team

Mark A. Vetter, AIA
Planning/Design Principal

Steven C. Johnson, AIA
Project Manager

L.S. Engineers, Inc.
Structural Design/Engineering

Gausman & Moore
Mechanical & Electrical Design/Engineering

Client

Montevideo Public School District 129
(320) 269-8831
Ed Nystrom
Superintendent
Gary Radke
Principal

Grade span
6-8

Current building capacity
700

Current building area
129,000 square feet

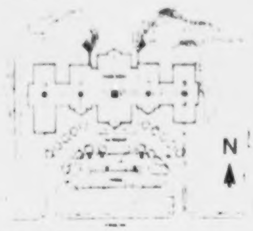
Total project costs
$10.2 million

Cost per square foot
$79

Space per student
184 square feet

Cost per student
$14,571

Completion date
January 1997



SITE PLAN

Montevideo Middle School
Montevideo, Minnesota

Vetter Johnson Architects, Inc.

The district's program dictated key design parameters for the design team, including a brick exterior, operable windows in enclosed classrooms, sloped roofs to blend with surrounding housing, and individual thermal controls. The resulting "prairie school"-influenced design is a series of "houses" organized along a spine that contains five dramatic, vertical, sky-lighted crossings/commons for student use. The efficient double-loaded corridor houses create many exterior walls with windows to courtyards. Each is capped with sloped, shingled roofs with wide overhangs.

The north-sloping site provided major challenges. The designers responded with a two-level scheme that includes earth-sheltered locker rooms, storage, and mechanical spaces. These are buffered by a two-story gym that "turns its back to the wind" on the lower level with access to adjacent recreation fields. Retaining walls provide vehicle turnarounds and access at the upper level.

A multipurpose commons with an overlook and gym access provides a central organizing space for study, dining, and recreation. The media/technology center is a strategically located state-of-the-art hub for community-wide use. Flanking the media center are separate grade-level entrances, adjacent to which are district offices on one side and middle school offices on the other—a unique program element with desirable security advantages. ■

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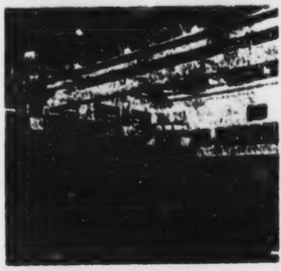
CORRIDOR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GYM

©DARRICK OLSON

EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

Bray Associates • Architects, Inc.

1807 Erie Ave.
Sheboygan, WI 53081
Web site: www.brayarch.com

Geoffrey J. Bray
(920) 459-4200

Design team

Lawrence C. Bray
Principal-in-Charge

Geoffrey J. Bray, AIA
Design Architect

Craig Welter
Project Manager

Sue Govier
Interior Designer/Space Planner

Patti Balliet
Interior Designer/Space Planner

Client

Hartland-Lakeside Joint No. 3 School District
(414) 369-6700

Grade span
6-8

Current building capacity
600

Current building area
136,657 square feet

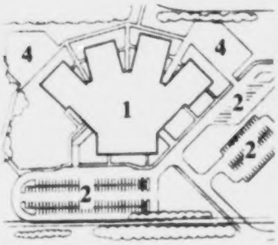
Total project costs
$10 million

Cost per square foot
$73

Space per student
228 square feet

Cost per student
$16,726

Completion date
June 1997



SITE PLAN

North Shore Middle School
Hartland, Wisconsin

Bray Associates • Architects, Inc.

At the center or palm of the gloveshaped facility is a community center with space for a gymnasium, locker rooms, stage, commons/cafeteria, kitchen, and large-group instruction. This leads to the academic pods like spokes of a wheel. Adjacent to this central region is the instructional media center, special education, and administrative areas, which are all accessible from the main street that connects the four pods to the core facility.

To break down the overall mass of the 600-student middle school, pods with sloped roofs were designed to create individual residential-style houses. The four pods consist of three houses for academic areas and another for exploratory programs such as family and consumer education, music, art, technology education, and foreign language. Each pod contains two areas for separate teams of 100 students each, including resource areas, a science room, a conference room, storage, rest rooms, and student lockers.

The commons/cafeteria is centrally located between the large-group instruction area and stage, which is accessible from the gymnasium. These areas were located together to provide space for a variety of activities, such as student gatherings (large-group instruction), performances (commons and stage or large-group instruction), and all-school events (gymnasium and stage). All are easily accessible for community use. ■

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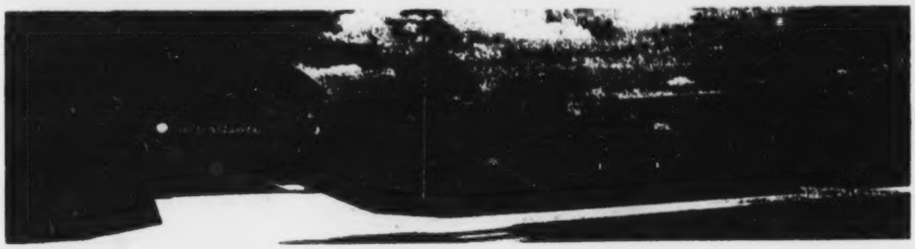
LIBRARY

CAFETORIUM



EXTERIOR

MIDDLE SCHOOLS
NEW CONSTRUCTION

Steed Hammond Paul Inc.

82 Williams Ave.
Hamilton, OH 45015
Web site: www.shpinc.com

Todd Thackery, AIA
(513) 863-5441

Design team

Todd Thackery, AIA
Principal-in-Charge

Melissa Walters, AIA
Project Manager

Connie McCarthy
Designer

Matt Murtha
Designer

Barbara Miller
Interior Designer

Client

Piqua City School District
(937) 773-4321

Grade span
7-8

Current building capacity
800

Current building area
107,650 square feet

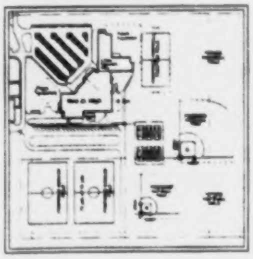
Total project costs
$10.15 million

Cost per square foot
$94

Space per student
135 square feet

Cost per student
$12,680

Completion date
September 1999



SITE PLAN

Piqua Junior High School
Piqua, Ohio

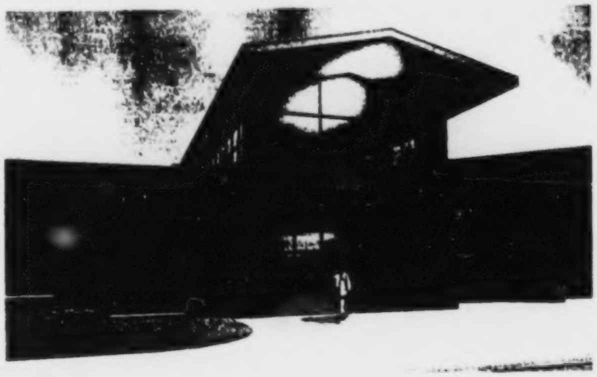
Steed Hammond Paul Inc.

When the Piqua City School District decided to build their new junior high school next to their existing high school, they wanted the exterior of the building to blend with the appearance of the high school to create a campus-like setting. They also wanted plenty of natural light throughout the interior of the new school.

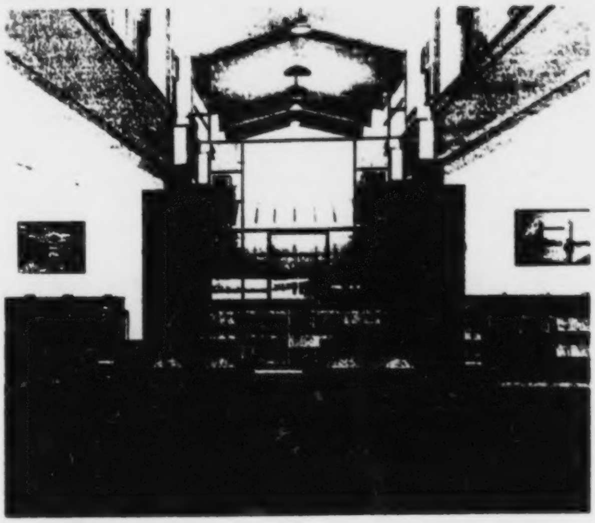
3-D modeling assisted the design team in determining how light comes into individual spaces and helped to finalize the building's design. The school district now uses the 3-D models to promote the building's features to the community.

Eight-foot square windows in every classroom provide abundant natural light for learning. Flexible learning areas between classrooms offer space for conferences, small-group learning, and tutoring. Floor-to-ceiling windows make the area part of the classroom and also bring daylight into those spaces.

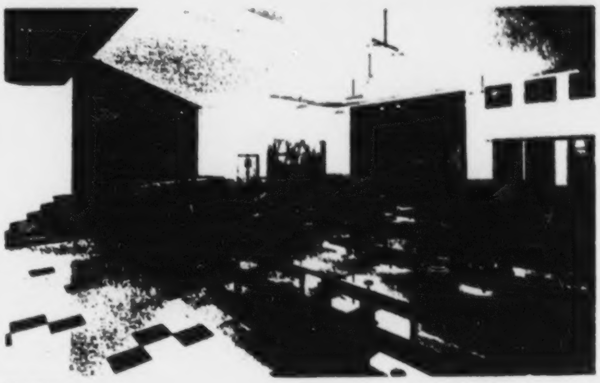
To bring natural light into the school's interior, an 80-foot expanse of windows runs from the main entry through the lobby and into the media center, the focal point of the entire building. A 22-foot-tall by 28-foot-wide window in the cafetorium provides natural light and an outside view to students during lunch. At night, dramatic lighting from the windows invites the public for numerous nighttime activities. ■



EXTERIOR



MEDIA CENTER



CAFETORIUM

MIDDLE SCHOOLS
NEW CONSTRUCTION

ARCON Associates, Inc.

420 Eisenhower Lane N.
Lombard, IL 60148

Karen A. Plummer
(630) 495-1900

Design team

Dennis E. Kajmowicz
Partner-in-Charge

William M. Strejc
Project Architect

Client

Lemont-Bromberek Combined
School District 113A
(630) 257-2286

Grade span
6-8

Current building capacity
900

Current building area
152,000 square feet

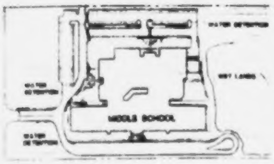
Total project costs
$16.5 million

Cost per square foot
$109

Space per student
169 square feet

Cost per student
$18,333

Completion date
August 1997



SITE PLAN

Old Quarry Middle School
Lemont, Illinois

ARCON Associates, Inc.

This new middle school is designed with the underlying philosophy that it functions as a community resource for recreation and educational purposes. It is designed to meet current needs and future requirements for 900 students. Core facilities include gymnasiums, classrooms, a learning center, and the technology system (with wiring for voice, video, data, and electrical power). The educational program includes grade pods, technology labs, and a life skills lab to prepare the students for home ownership and to teach the use of small tools.

Other features:

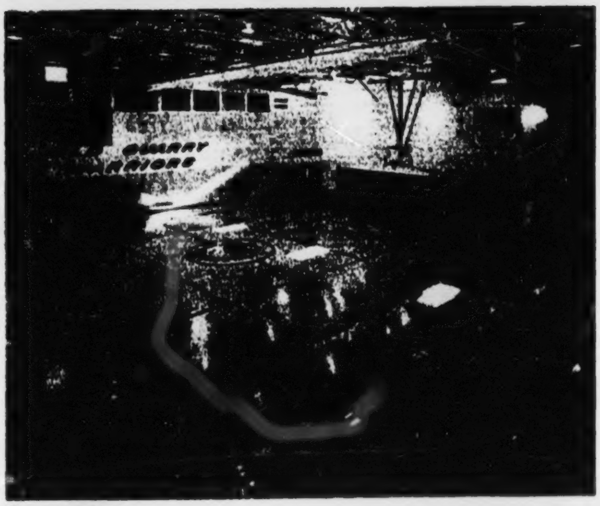
- The building structure was designed to accommodate a future second-floor addition.
- The site was developed in cooperation with the park district regarding joint use of space. The doorways and halls are designed to encourage public use after school hours, while maintaining security for other areas of the building.
- The school incorporates the

LEARNING RESOURCE CENTER

GYMNASIUM ENTRANCE

EXTERIOR

TECHNOLOGY LAB

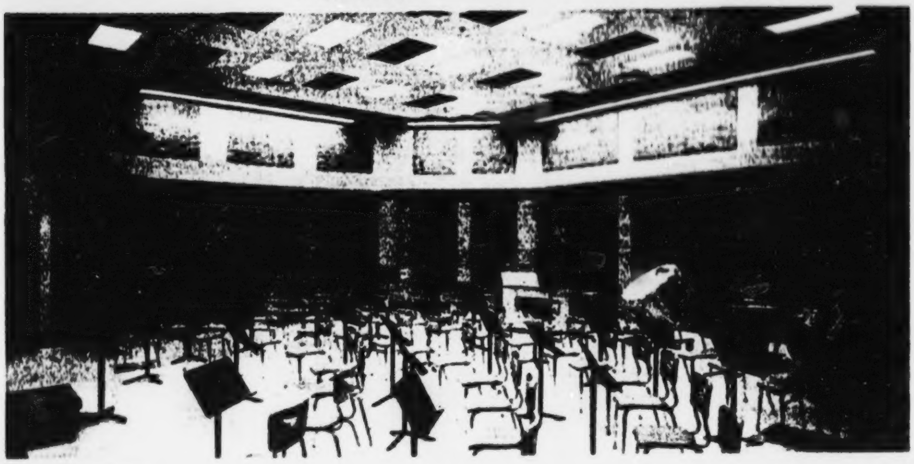


GYMNASIUM

school district's administrative offices.

■ The site's low-grade wetland areas were developed into a high quality wetland that meets Army Corps of Engineers' standards and functions as an outdoor educational habitat.

■ The cogeneration system helps the school district meet its electrical needs and save money. Natural gas powers the system to create electricity for the building. All systems in the building are fully automated and controlled by an energy-management computer program. ■



MUSIC CLASSROOM

MIDDLE SCHOOLS
NEW CONSTRUCTION

Harriman Associates

One Auburn Business Park
Auburn, ME 04210
Web site: www.harriman.com

Daniel W. Cecil, AIA
(207) 784-5100

Design team

Rodney S. Boynton, AIA
Principal-in-Charge

Daniel W. Cecil, AIA
Project Manager/Project Architect

Daniel Robbins
Job Captain

Derek Smythe
Draftsman/Designer

Robert D. Delsandro
Interior Design

Andre Deshaies, ASLA
Landscape Architect

Frank Crabtree, PE
Civil Engineer

B. Keith Brenner, PE
Structural Engineer

Richard Marchessault
Plumbing Designer

Clifton Greim, PE
Robert M. Marcotte, PE
Mechanical Engineer

Philip R. Morissette, PE
John W. Tarr, PE
Electrical Engineer

Kenneth E. Brann, CSI
Specifications

Per T. Randby
Construction Administration

Ray Roy
Clerk-of-the-Works

Todd Guyette
Kitchen Consultant

Client

School Union No. 44
(207) 375-4273

Grade span
4-8

Current building capacity
350

Carrie Ricker Middle School
Litchfield, Maine

Harriman Associates

A fire that completely destroyed a school gave this small, rural town the chance to create a building that would both educate its children and serve as a much-needed community center.

With a red-brick exterior, cupolas, and gables, the school's design complements the town's 200-year heritage. It even has a historic iron bell in a cupola on the roof over the main entrance, which has become a community landmark as well as a reflection of the town's original school. The cupola on the gymnasium roof mimics those on many area barns.

The new school's gymnasium, cafeteria with stage and kitchen, library, and computer rooms are located for easy public access to accommodate intensive community use. Most classrooms face east or south, bringing in warmth and sunlight. The school's orientation on the site allows for views of mountains and rolling hills to the east, especially from spaces used by the public.

Despite the emphasis on tradition, the school is wired for the next century with a high-tech communications system that has a fiber-optics backbone. And with a 100-kilowatt emergency power generator, the school can become a temporary community shelter, as it did during a major ice storm just months after it opened. ■

Current building area
52,000 square feet

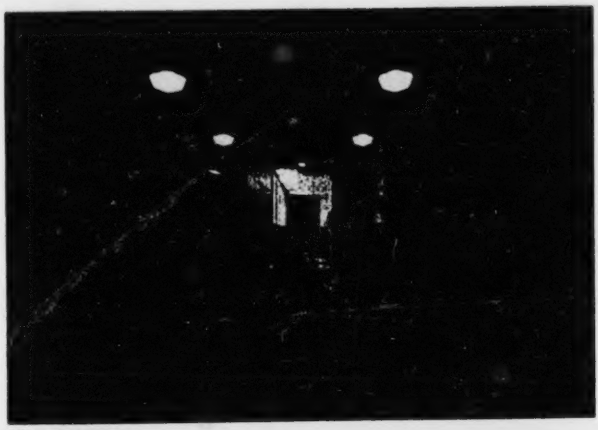
Total project costs
$6.39 million

Cost per square foot
$123

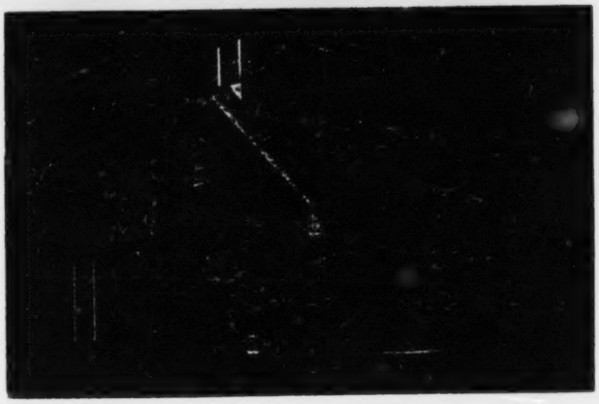
Space per student
148 square feet

Cost per student
$18,265

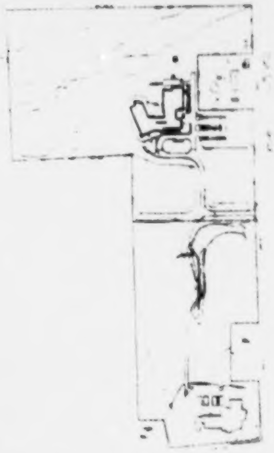
Completion date
August 1997

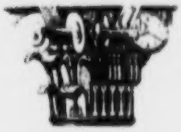

©Brian Vanden Brink, Photographer

Main corridor


Exterior

Cafetorium


Site plan



MIDDLE SCHOOLS
NEW CONSTRUCTION

Hayes Large Architects

Logan Blvd. & Fifth Ave.
Altoona, PA 16603
Web site: www.hayeslarge.com

H. Diane Marlett
(814) 946-0451

Design team

Vern L. McKissick III, AIA
Partner-in-Charge

Client

Selinsgrove School District
(717) 374-1144

Grade span
3-5

Current building capacity
1,050

Current building area
107,800 square feet

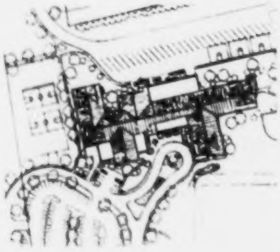
Total project costs
$13.1 million

Cost per square foot
$ 122

Space per student
103 square feet

Cost per student
$1,247

Completion date
August 1997



SITE PLAN

Selinsgrove Intermediate School
Selinsgrove, Pennsylvania

Hayes Large Architects

Designed with expansion in mind, the new Selinsgrove Intermediate School has an initial capacity of 1,050 pupils but can easily be enlarged. Located 45 miles north of Pennsylvania's capital, Harrisburg, the district has great concern over the potential for future growth due to significant improvements in the area's infrastructure.

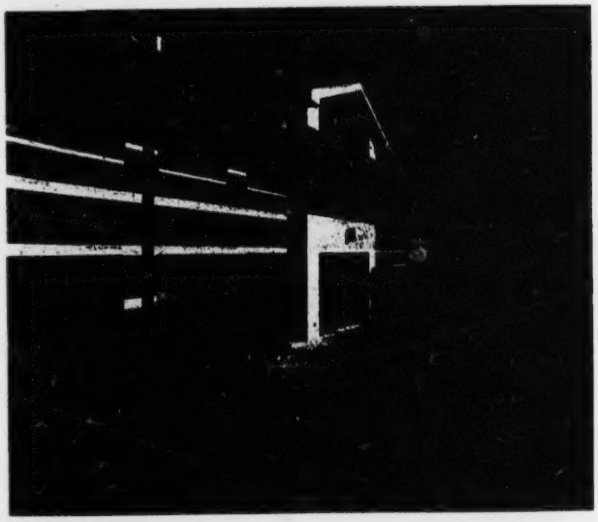
The architecture responds to elements of local Amish brick barns and the nearby Susquehanna University. Multiple-sized masonry units allowed for the creation of a child-scale exterior patterning. Additionally, with recent historic snowfalls, the firm selected a shingled solution that can be easily maintained. The realities of a narrow site and sloped roof opposed the request for educational clusters in the traditional sense.

All classrooms are L-shaped, with four-station computer lab/small-group areas. These can be combined with adjacent classrooms via a sliding partition, creating eight-station mini-labs.

The third- and fourth-grade classrooms were designed as clusters with "commons" subdivisible into seminar space. Teachers can use folding partitions to create two six-room areas within the fifth-grade area.

Associated with each team is a 1,500-square foot learning lab. It accommodates specialized instruction via perimeter counters/sinks, rolling workstations, underfloor power/data, and specialized ventilation.

Additional flexibility is provided to classroom teachers. Each teacher's computer has the capability to display any screen image to the wall-mounted television via a built-in video converter. Color-coded outlets allow quick identification of the clean, surge-protected conditioned power for computer systems. ■



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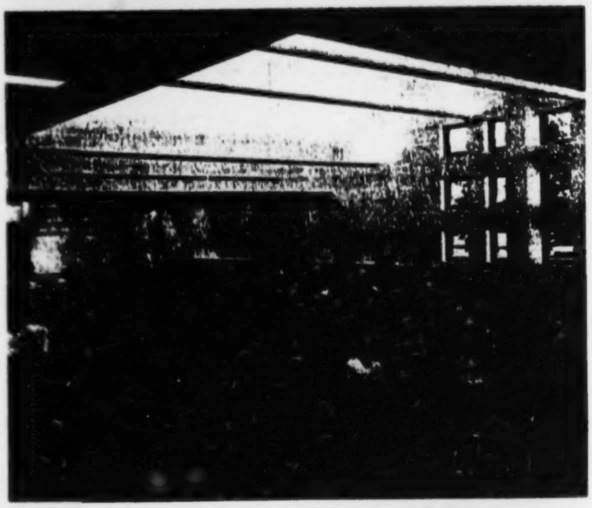
EXTERIOR



LIBRARY

CORRIDOR

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611

MIDDLE SCHOOLS
NEW CONSTRUCTION

GreenAssociates Architects, Inc.
832 Custer Ave.
Evanston, IL 60202
Web site: www.greenassociates.com
Ginny Kontopoulos
(847) 328-0852

Design team

Carole Donovan Pugh, AIA
Project Manager

James Boley, AIA
Project Designer

Frank Michalski, AIA
Project Architect

Myn Ancheta, AIA
Architect

Debbie Antes, AIA
Architect

Don Brooking, AIA
Architect

Client

Arlington Heights School District 25
(847) 758-4900

Grade span
6-8

Current building capacity
900

Current building area
146,878 square feet

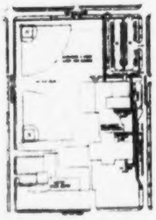
Total project costs
$15.96 million

Cost per square foot
$109

Space per student
163 square feet

Cost per student
$17,733

Completion date
June 1997



SITE PLAN

South Middle School
Arlington Heights, Illinois

GreenAssociates Architects, Inc.

This building replaces South Junior High School and was constructed while the existing building was still occupied. The multi-level design conserves land and is organized around the administrative area and learning center. The three-story academic wing houses one grade per floor; each grade has two five-section teams. On the opposite end of the building are music, physical education, and the multipurpose room. A fourth physical education station ensures that the multipurpose room will always have a block of time available for large-group activities.

The building's architectural design elements are scaled to its neighbors by using residential-sized windows, and horizontal design elements, and by reducing the mass of this building into smaller, identifiable units. An intensive landscape program will also soften the building as it matures. Visitors are drawn to the main entrance by the curved plan element and the site design. The curve is repeated in the design of the entrance canopy and the roofs over the multipurpose room and gymnasiums.

The teaching staff and students who participated in the design are very excited about how well the building responds to the program, making learning easier. ■

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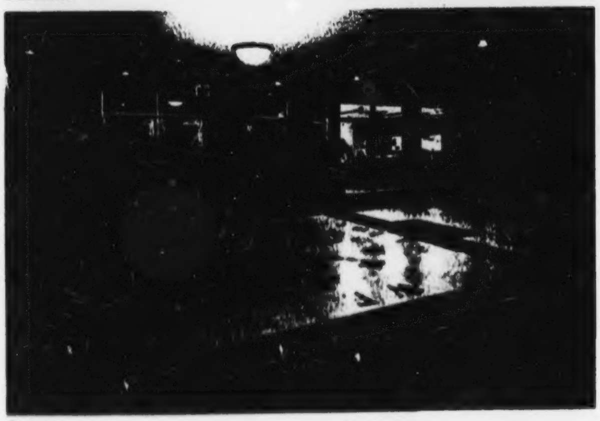
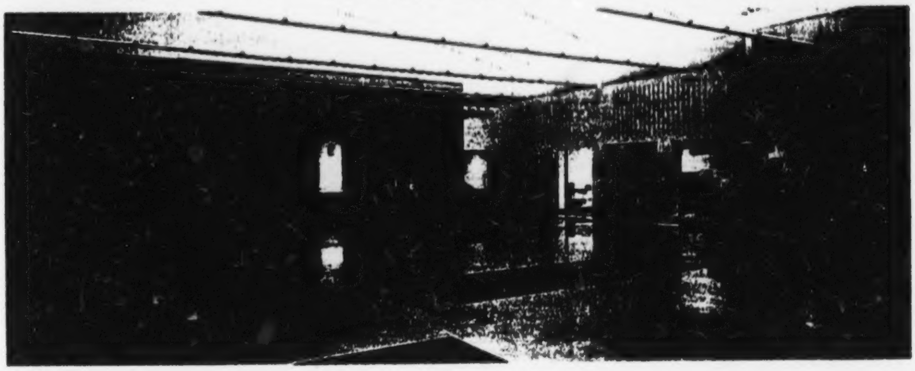
EXTERIOR



ENTRY



GYM

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

OWP&P Architects Inc.

111 W. Washington, Suite 2100
Chicago, IL 60602-2714

Kerry Leonard
(312) 332-9600

Design team

Kerry Leonard
Project Director

Celine Coath
Project Manager

Stuart Brodsky
Project Architect

Trung Le
Project Architect

Bruce Ream
Principal

OWP&P
Structural Engineer

OWP&P
MEP Engineer

Gewalt-Hamilton Associates Inc.
Civil Engineer

Wendy Watts
Interior Design

Client

Arlington Heights School District 25
(847) 758-4900
Turner Construction Co.
(312) 341-1300

Grade span
6-8

Current building capacity
900

Current building area
112,000 square feet

Building area before addition/renovation
76,000 square feet

Total project costs
$11 million

Cost per square foot
Addition: $135
Renovation: $85

Space per student
124 square feet

Cost per student
$12,577

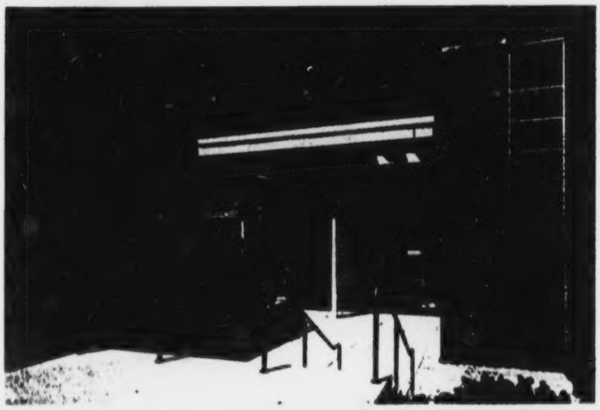
Completion date
Fall 1997

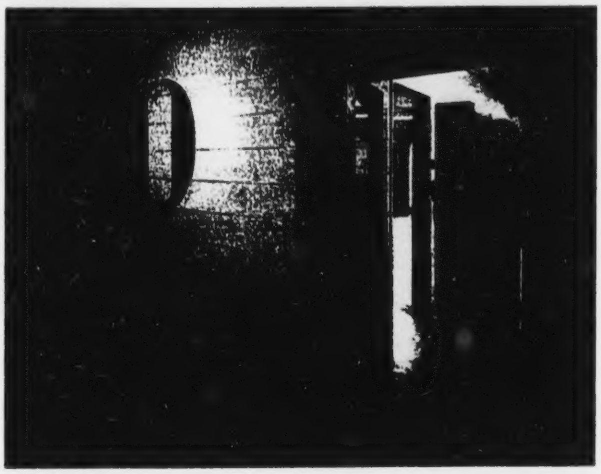
Thomas Middle School
Arlington Heights, Illinois

OWP&P Architects Inc.

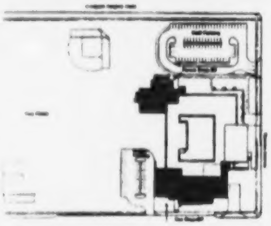
As part of a district-wide building improvement project, Thomas Middle School faced a challenge. The school district wanted to upgrade the 1960s-era facility to meet the needs of 21st century learning.

To complete the construction process quickly, Turner Construction in collaboration with the district selected OWP&P because of its proposed decision-making process for the design of the school. To begin, the firm proposed and led a 2½-day charette at its offices to set goals, establish needs, determine a budget, and prioritize work. The firm also developed a conceptual plan that balanced the budget, schedule, design, and educational program. The mix of educators, designers, and builders focused on obtaining the maximum value from the existing structure.


EXTERIOR


CORRIDOR

LIBRARY


SITE PLAN

Every opportunity to create places of learning was explored at Thomas. The science wing was designed to extend learning beyond the classrooms. A life-sized metric ruler on the floor and wall allows the corridor to become a measuring tool for experiments. The two-story space in the hallway becomes a station for science experiments requiring height, such as a pendulum, acceleration or egg drop.

The design team's challenge was to develop middle school teaming in a double-corridor building. The solution was to group each team together in the academic corridors and provide shared team resource areas and small classroom spaces to allow flexibility. Students have a home base in their team areas and travel to other spaces for science and non-core subjects.

The Thomas project resulted in an equitable environment with the replacement middle school simultaneously being built elsewhere in the district. ■

MIDDLE SCHOOLS
NEW CONSTRUCTION

MKC Associates, Inc.
104 Fair Ave., NW, P.O. Box 1002
New Philadelphia, OH 44663
Web site: www.mkcinc.com

John F. Pottmeyer
Managing Principal
(330) 364-8871

Design team

John F. Pottmeyer
Project Architect

Steve Van Meter
Job Captain

Jay Shah
Structural Engineer

Russ Betz
Mechanical Engineer

Craig Christie
Electrical Engineer

R.P. Carbone Construction, Inc.
Construction Manager

Client

Tuscarawas Valley Local School District
(330) 859-2213

Grade span
5-8

Current building capacity
600

Current building area
78,354 square feet

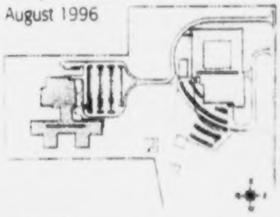
Total project costs
$5.73 million

Cost per square foot
$73

Space per student
130 square feet

Cost per student
$9,548

Completion date
August 1996



SITE PLAN

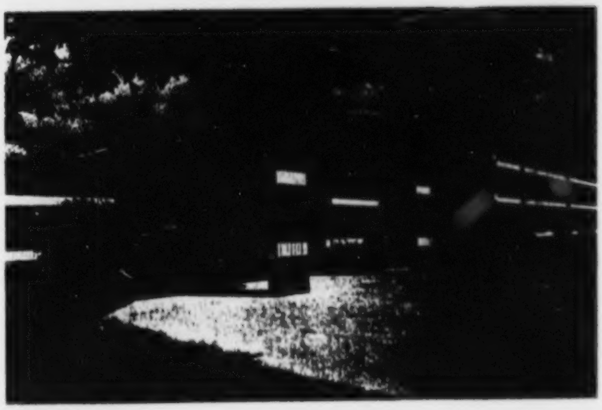
Tuscarawas Valley Middle School
Zoarville, Ohio

MKC Associates, Inc.

The need to address a rapidly growing school population and the opportunity to create a stronger learning environment led the Tuscarawas Valley Local School District and the MKC design team to create a multiwinged floor plan for the new facility (grades 5 through 8). Each grade level now has the opportunity to create its own identity in a separate wing around a common core, using the library as the connector. Parental concerns over the mixing of students across this sensitive age range are addressed in a very positive manner.

Each grade wing includes two contiguous classrooms that are separated by a movable partition to facilitate team teaching. While each grade level has its own science classroom, it shares preparation and storage space with the adjacent grade level.

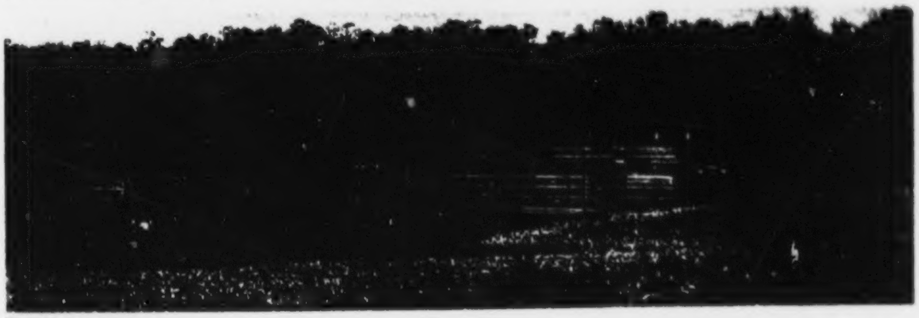
Technology needs were addressed by creating a computer network throughout the building for students and teachers to use for e-mail and interactive learning. Noise-generating spaces, including music, art, the gymnasium, and the cafeteria, are isolated from the academic classrooms to minimize disturbance.



ENTRANCE

INTERIOR

The cafeteria has been designed for use as an auditorium and as a lobby for the 800-seat gymnasium. Visitor control and accessibility have been addressed by placing the administrative offices adjacent to the main entrance. ■



EXTERIOR

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

Foreman Architects Engineers, Inc.
P.O. Box 189
Zelienople, PA 16063
Web site: www.foremangroup.com
Paul Fackler, AIA
(724) 452-9690

Design team

Clifford G. Foreman
Principal-in-Charge

Paul Fackler, AIA
Project Manager

Roger McIntyre
Project Architect

Todd Tusick
Project Architect

Bob Dorsch
Mechanical Engineer

Steve Cotherman
Electrical/Technical Engineer

Gary Giles
Structural Engineer

Julianne Rogozewicz
Interior Designer

Client

Montour School District
(412) 778-1060

Grade span
6-8

Current building capacity
1,464

Current building area
150,042 square feet

Total project costs
$15 million

Cost per square foot
$80 new; $67 existing

Space per student
102 square feet

Cost per student
$7,417

Completion date
December 1997

David E. Williams Middle School
Coraopolis, Pennsylvania

Foreman Architects Engineers, Inc.

As the Montour School District continued to show a steady increase in student enrollment at the middle school level, it became readily apparent that additional school capacity for middle school students was an immediate concern. A facility master plan concluded that the best strategic plan to provide additional capacity was to construct an addition and renovation of David E. Williams Middle School.

The completed project consists of: 31 classrooms, four special education classrooms, one small and four large-group/seminar areas, an auditorium (with stage) to seat 500, six science labs, two science student project rooms, one greenhouse, two computer labs, two art classrooms, one music classroom, one band room, one choral room, two homemaking areas, one industrial arts shop area with a classroom, one gymnasium with locker rooms and two instructors' offices, one cafeteria to seat 300, one faculty room with dining area, a health room, and an administration/guidance area for nine staff members.

The renovations to the site included replacement of all bituminous roads, parking, and paved areas. Concrete sidewalks were also repaired. Additional parking was added inside the bus loop. ■

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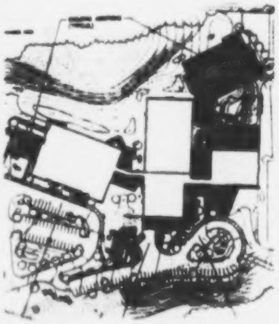
LIBRARY

CAFETERIA

AUDITORIUM



SITE PLAN

MIDDLE SCHOOLS
New Construction

HMC Architects

3270 Inland Empire Blvd.
Ontario, CA 91764
Web site: www.hmcgroup.com

Chris Taylor, AIA
(800) 350-9979

Design team

Jim Gilliam, AIA
Principal-in-Charge

Chris Taylor, AIA
Project Director

Rohit Shah, NCARB
Project Architect

Client

Santa Ana Unified School District
(714) 480-5357

Grade span
6-8

Current building capacity
1,000

Current building area
95,130 square feet

Total project costs
$12 million

Cost per square foot
$126

Space per student
95 square feet

Cost per student
$12,000

Completion date
September 1998

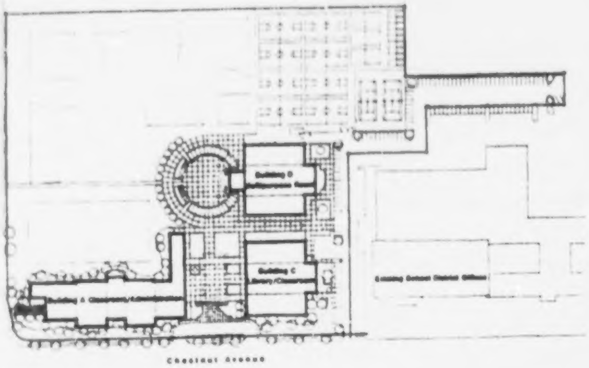
Raymond A. Villa Fundamental Intermediate School Santa Ana, California

HMC Architects

The Raymond A. Villa Fundamental Intermediate School is located on a corner of a predominately industrial site directly next to the district office. The challenge for the project design team was to create an inviting educational environment that is protected from the urban surroundings, adds a complementary element to the district office, and uses materials that will hold up in an industrial atmosphere.

The campus is designed with three buildings: a two-story administration/classroom building, a one-story library/classroom building, and a one-story gymnasium/multipurpose/kitchen building. Consisting of 95,130 square feet, the school has 30 classrooms, two music classrooms, four science labs, one home economics classroom, two shop classrooms, four business classrooms, and two art classrooms.

The school is designed around a circular amphitheater that is connected by an outdoor stage to the inside stage of the multipurpose room. This allows for dramatic or musical performances to be observed from either location.



Site plan

Entrance

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Exterior

The surrounding athletic fields and hardscape courts are used as a buffer from the surrounding businesses and streets.

Incorporating available technology into the classroom and planning for the future, the entire campus has a complete media retrieval system. Each classroom can receive or transmit video and other media to other areas on campus or out into the world. This system will support standard video, HDTV, fiber-distributed data interface, and DS-3 signals. Each classroom is wired for computers, which are networked to the entire campus and to the Internet. ■

Laboratory

MIDDLE SCHOOLS
RENOVATIONS/ADDITIONS

GRA Architecture

482 Notch Road
West Paterson, NJ 07424

Germano Rubino, AIA
(973) 256-0202

Design team

Germano Rubino, AIA
Design Principal

Robert Starz
Project Manager

Client

Woodcliff Lake Board of Education
(201) 391-6570

Grade span
6-8

Current building capacity
400

Current building area
51,750 square feet

Building area before addition/renovation
41,600 square feet

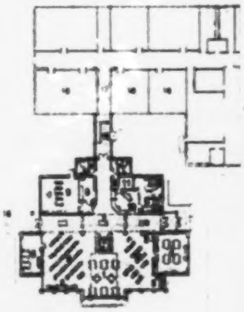
Total project costs
$1.65 million

Cost per square foot
$162

Space per student
135 square feet

Cost per student
$22,000

Completion date
September 1998



FLOOR PLAN

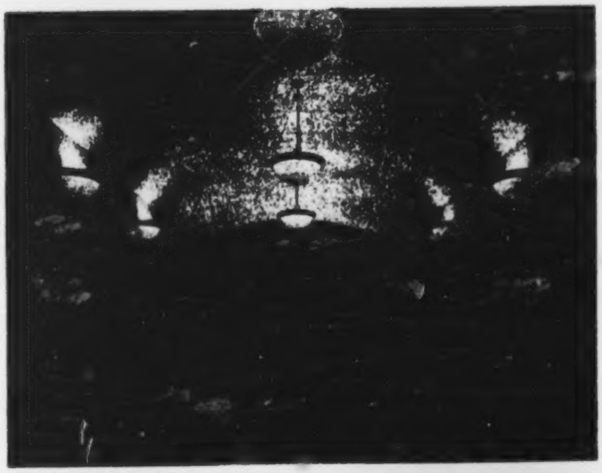
Woodcliff Middle School Woodcliff Lake, New Jersey

GRA Architecture

The Woodcliff Lake Public School District, in assessing the district's capacity to effectively address their academic priorities, determined that constructing a state-of-the-art media center for their middle school building was critical. Because Woodcliff Lake does not have its own public library, a concomitant need was to provide after-school library services to a broader range of students. The new media center in the middle school (grades 6-8) was also designed to function as an after-school homework and research center for youngsters enrolled in grades 4-9.

In terms of location, the objective was to create a space that, while incorporated into the existing school building, could also be entered directly from the main parking area during after-school hours. The overall design objective was to create a center that was spacious but user-friendly for youngsters aged 9-15. GRA Architecture's design works to establish clearly defined purpose areas (television production, reference, periodical review, quiet reading, and group work) by organizing the different uses around two main circulation "galleries." Varying ceiling heights, floor treatments, furniture placement, color selection, and lighting were critical to reducing the overall scale of the open floor plan.

The new facility incorporates a brick facade that is compatible with an adjacent school wing built in 1934. It contains a six-zone HVAC system and is fully wired to accommodate an array of technological applications. ■



MAIN READING ROOM

MAIN GALLERY

EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

RAPM/Rambo Associates Project Management

11926 Arbor Street, Suite 101
Omaha, NE 68144

Wade Goehring
(402) 333-2969

Design team

Wade Goehring
Steve Goergen
Christy Harris
Don Mohlman
Angelo Passarelli
Merle Rambo

Client

Beatrice Public Schools
(402) 223-1500

Grade span
9-12

Current building capacity
900

Current building area
140,000 square feet

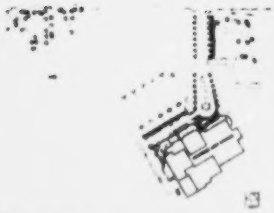
Total project costs
$8 million

Cost per square foot
$57

Space per student
156 square feet

Cost per student
$8,912

Completion date
August 1998



SITE PLAN

Beatrice High School
Beatrice, Nebraska

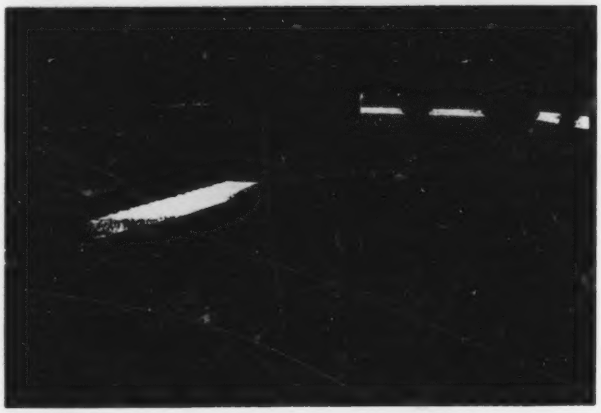
RAPM/Rambo Associates Project Management

The RAPM design team, together with staff and community, endeavored to sustain the educational excellence brought to the region by its pioneering founders. This state-of-the-art facility features learning centers and technologies that will accommodate curriculum delivery well into the next millennium.

The school was created to accentuate a family atmosphere. Natural light floods the student commons, the focal point of the school. This comfortable gathering area not only supports student activities during lunch and other free periods but also provides an excellent location for community assemblies and is the perfect intermission venue.

LIBRARY

EXTERIOR



AUDITORIUM

The elegant Hevelone Center for Performing Arts seats 860 and boasts an exquisite wrap-around balcony. A full control booth and catwalk support the high-tech light, sound, and projection systems.

Athletics are enriched within the 2,000-seat competition gym and supporting auxiliary gym. Overlooking the competition gym is a wrestling mezzanine and adjacent strength and conditioning center, which is conveniently accessible after hours to students and members of the community.

Wrapping the grand staircase is a brick mural that depicts the essential traits of good character. Other highlights include an oversized full-life planter under an impressive skylight in the two-story media center and a painted mural spanning the commons wall. ■

CAFETERIA

HIGH SCHOOLS
NEW CONSTRUCTION

Diseroad, Wolff, Kelly, Clough, Bucher, Inc.

8 Broad Street
Hatfield, PA 19440

Robert C. Kelly, AIA
(215) 368-5806

Design team

Frederick W. Diseroad, AIA
Principal-in-Charge

Robert C. Kelly, AIA
Principal-for-Design

P. Michael O'Rourke, AIA
Project Design

Colin McKelvie, RA
Project Manager

Client

Archdiocese of Philadelphia
(215) 587-3707

Grade span
9-12

Current building capacity
1,200

Current building area
215,000 square feet

Total project costs
$25.6 million

Cost per square foot
$119

Space per student
180 square feet

Cost per student
$21,333

Completion date
June 1998

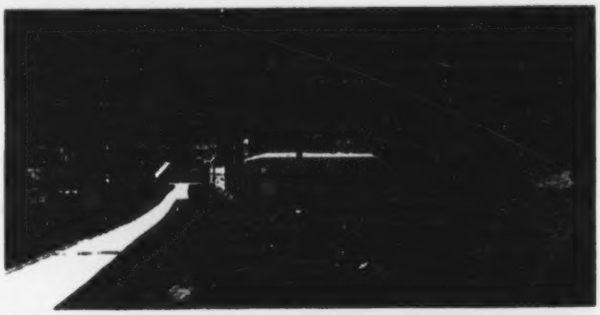
SITE PLAN

Bishop Shanahan High School
Downingtown, Pennsylvania

Diseroad, Wolff, Kelly, Clough, Bucher, Inc.

Bishop Shanahan High School is planned as a state-of-the-art facility for 1,200 students. Designed for maximum utilization, the building is conceptually divided into two major zones. The academic center is made up of state-of-the-art classrooms, science rooms, and department resource rooms. The community center consists of an auditorium with 1,200 seats, a gymnasium with 1,000 seats, a student commons, dining facilities, and a state-of-the-art library and computer center.

The building is constructed to maximize site utilization while minimizing construction costs. The planning of the site and building demonstrates an emphasis on separate and safe on-site circulation patterns while maintaining secure, single-point building access monitoring. The building plan demonstrates clear student circulation patterns. The overall building plan has a sense of openness and takes maximum advantage of natural light. ■



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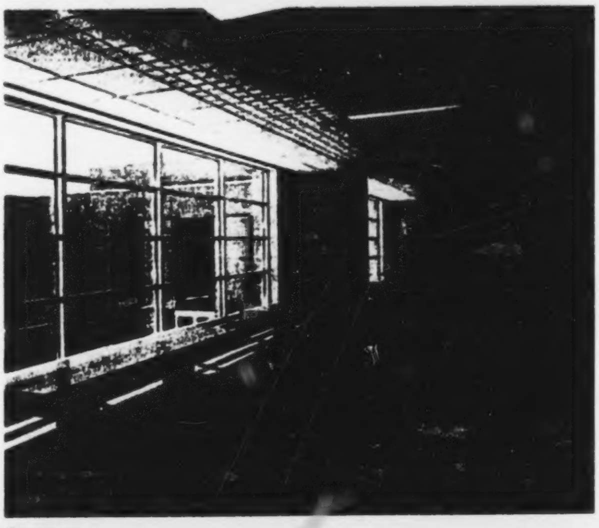

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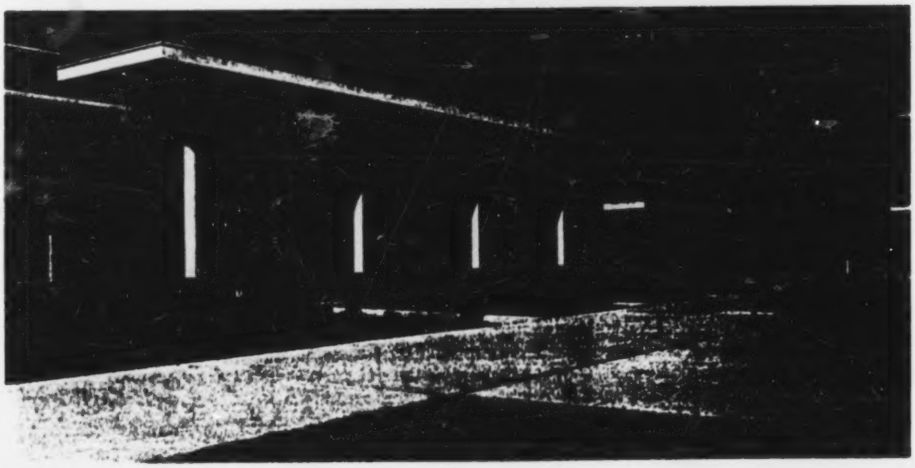


EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

Tower Pinkster Titus Associates, Inc.
1000 S. Burdick Street
Kalamazoo, MI 49001
Howard K. Driver
(616) 343-6133

Design team

Thomas Mathison
Project Architect

Jeffrey Turner
Project Designer

Howard K. Driver
Project Manager

Kris Ford
Owen-Ames-Kimball
Construction Manager

Client

Byron Center Public Schools
(616) 878-6100

Grade span
9-12

Current building capacity
800

Current building area
240,800 square feet

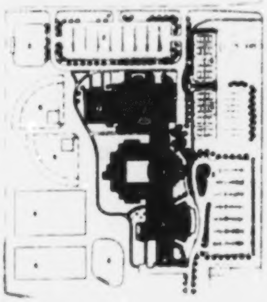
Total project costs
$32.28 million

Cost per square foot
$134

Space per student
301 square feet

Cost per student
$40,344

Completion date
1998



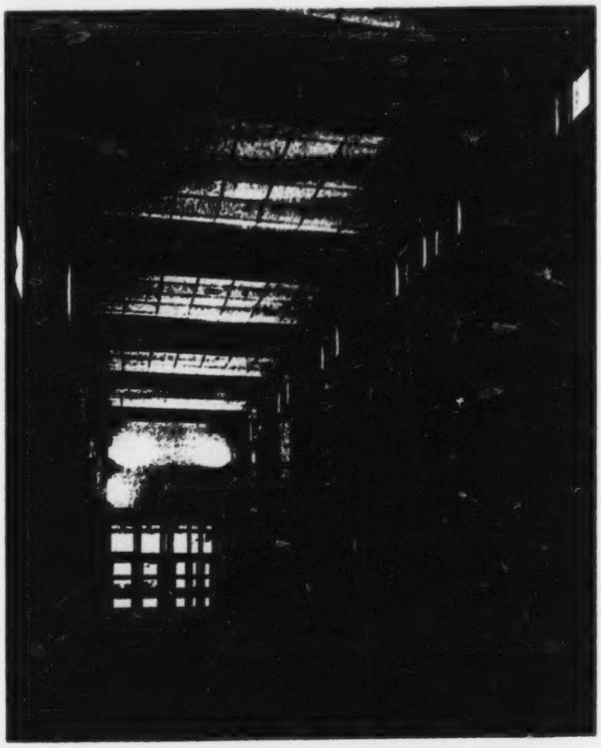
SITE PLAN

Byron Center High School
Byron Center, Michigan

Tower Pinkster Titus Associates, Inc.

This new 240,800-square-foot high school is located in Byron Center, Michigan, along two county drain systems. It is affected by flood plains and difficult soil conditions. The challenge was to ensure that all site development complied with the Michigan Department of Environmental Quality's guidelines for wetland and floodplain impact concerns. A consultant was hired to conduct a wetlands emitigation and, as a result, an impressive high school was erected.

The school provides students with the most advanced applications of available technology. More than 70 miles of video, audio, data, and voice cabling permit room-to-room conferencing and distance learning. Classrooms contain three video cameras and up to four monitors which permit teachers to employ touch-screen technology from a multimedia workstation. Rooms with advanced computer technology will be used for community and student instruction. The facility includes a computer and media room linking the district's schools and a television and radio production room.



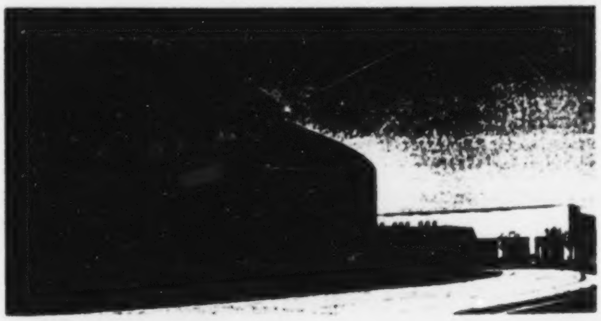
c.Steve Sadler/Jim Powell Photography

CORRIDOR

The Van Singel Arts Center for school and community theater features complete hookups for touring road show groups. The 6,000-square-foot facility has 800 seats, a modified-fly stage, complete rigging and catwalks, theatrical sound and lighting systems, and an orchestra pit. The space also contains dressing rooms, a scene shop, piano storage, offices, a ticket booth, rest rooms, and a green room.

Athletic amenities include a three-court primary gymnasium, a full-court practice gym, and locker and weight rooms. The natatorium consists of an eight-lane competition pool with diving well, locker rooms, showers, coach's office, and spectator seating.

The face brick exterior involves an exterior insulation and finish system and diagonal control lines. Split-faced block also accents corridor walls and is the predominant material used in the auditorium. ■



EXTERIOR

HIGH SCHOOLS
New Construction

Boney Architects, Inc.

2528 Independence Blvd., Suite 200
Wilmington, NC 28412
Web site: www.boneyarch.com

Jack Claywell
(910) 790-9901

Design team

Jack Claywell
Principal-in-Charge/Project Architect

David Yung
Project Manager

Tom Roark
Construction Administration

Ronald L. Shank, CCS, CSI
Director of Specifications

Janet Warren
Interior Design

Client

Carteret County Schools
(919) 728-4583
Dr. David K. Lenker, Jr.
Superintendent

Grade span
9-12

Current building capacity
800 (with core for 1,000)

Current building area
135,000 square feet

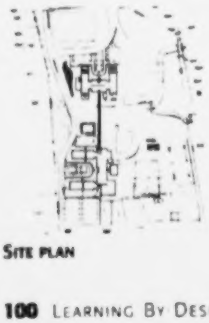
Total project costs
$13.5 million

Cost per square foot
$100

Space per student
169 square feet

Cost per student
$16,875

Completion date
August 1998



Site plan

Croatan High School
New Port, North Carolina

Boney Architects, Inc.

Croatan High School is part of a 90-acre campus that includes Bogue Sound Elementary School. The combination of a high school and elementary school on the same site presented special challenges but offered many opportunities as well. By sharing facilities such as the bus parking area, the on-site treatment plant, and a future auditorium, the client was able to see a significant savings in construction costs.

The Carteret County School System's vision for Croatan High School focused on a design plan organized by school programs rather than grade levels. The architect worked with this vision, achieving it through the creation of wings that are divided by subject area. The building design includes a cultural arts wing, a business wing, and a vocational/technology wing. With this plan, Croatan teachers have added opportunities for interaction and joint projects. These design elements result in a simple and easily discernable building arrangement that seems much smaller than its 135,000-square-foot area would suggest.

To make the school a more integral part of the community, the design encourages public use of its facilities, such as the gymnasium, media center, and cafeteria, during after-school hours. For security, classroom areas can be closed off to prohibit public access during these times. By encouraging community use of school facilities, public education in Carteret County benefits from increased community support and interest.

All areas of the high school are housed under one roof, with noisy areas such as vocational shops, locker rooms, and the gymnasium isolated from instructional areas. Building construction was designed for low maintenance with a brick exterior, concrete block interior, and steel frame with the combination of standing seam metal and single-ply roofing. The campus' cougar mascot and school names were designed into the hard tile flooring in the main lobby and gymnasium lobby.

The two schools were placed 600 feet apart, allowing them to function as two separate entities. Athletic facilities for each school are separated by a natural wetlands buffer. This positioning helps control unnecessary student interaction on the campus and promotes a distinct learning environment for each school. ■

Exterior

Laboratory

Corridor

622

HIGH SCHOOLS

PROJECT IN PROGRESS

The Stubbins Associates, Inc.

1033 Massachusetts Ave.
Cambridge, MA 02138
Web site: www.tsa-arch.com

Joan Nelson
(617) 491-6450

Design team

The Stubbins Associates, Inc.
Architect

LeMessurier Consultants, Inc.
Structural Engineer

R.G. Vanderweil Engineers, Inc.
Mechanical/Electrical Engineer

A.J. Martini
Contractor

Client

Cushing Academy
(978) 827-7100

Grade span
9-12

Current building capacity
100

Current building area
14,000 square feet

Total project costs
$2.57 million

Cost per square foot
$180

Space per student
145 square feet

Cost per student
$25,000

Completion date
April 1998

SITE PLAN

Cushing Academy
Ashburnham, Massachusetts

The Stubbins Associates, Inc.

EXTERIOR

©JONATHON HILLYER

DRAWING AND PAINTING STUDIO

ART GALLERY

Founded in 1865, Cushing Academy is an independent, college preparatory school for girls and boys in grades 9-12 and postgraduate. Located on a beautiful rural campus west of Boston, Cushing Academy has valued tradition, challenge, and educational opportunity for over 130 years.

The visual arts center is the latest addition to the Cushing campus. The Emily Fisher Landau Center for the Visual Arts provides students with a large and well-equipped class facility in which to learn and create. Whether a novice exploring new interests or an experienced artist preparing a portfolio for art school, a student can easily find his or her niche in Cushing's visual arts program. Dedicated faculty—artists in their own right—help students acquire and refine their skills, plan projects, and audit work.

The building is 14,000 square feet on two levels terraced into a sloping hillside. Studio spaces are provided for drawing, painting, sculpture, ceramics, jewelry making, photography, computer graphics, and stained glass. All studios are oriented to the south and east and have full-height windows. Half-circular dormers also provide students with exposure to natural daylight.

The Maude Bowen Carter Gallery serves as a focal point for the interiors. The wood floor and detailing provide a warm setting for formal gatherings and art exhibits. The gallery also showcases Cushing's permanent art collection.

Exterior materials were chosen to harmonize with the existing campus buildings. A Morin College blend brick is the primary material and is used in four different patterns to visually break down the building's scale. The brick is accented with Jonesboro flame-finish granite details on the windowsills and at the building's base. The building roof is slate with copper trim.

Occulus windows and half-round dormers complement the mass of the building while enhancing exposure to natural light. In a like manner, the brick chimneys conceal mechanical equipment and modulate the roof. A custom copper-and-glass light fixture was designed to grace the building's entrance. The fixture is complemented by a sunburst pattern above the entrance eyebrow. ■

HIGH SCHOOLS
NEW CONSTRUCTION

Bray Associates • Architects, Inc.

1807 Erie Avenue
Sheboygan, WI 53081
Web site: www.brayarch.com

Richard C. Lundeen, AIA
(920) 459-4200

Design team

Lawrence C. Bray
Principal-in-Charge

Richard C. Lundeen, AIA
Design Architect

Mark Schuchardt, AIA
Project Architect

M. Terry Higgins, RLA
Landscape Architect

Patti Balliet
Interior Designer/Space Planner

Sue Govier
Interior Designer/Space Planner

Client

Fort Atkinson School District
(920) 563-7807

Grade span
9-12

Current building capacity
1,200

Current building area
261,700 square feet

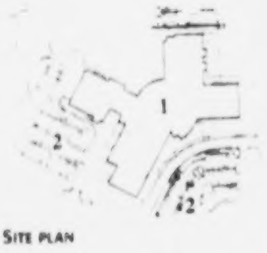
Total project costs
$23.77 million

Cost per square foot
$91

Space per student
218 square feet

Cost per student
$19,811

Completion date
August 1998



SITE PLAN

Fort Atkinson High School
Fort Atkinson, Wisconsin

Bray Associates • Architects, Inc.

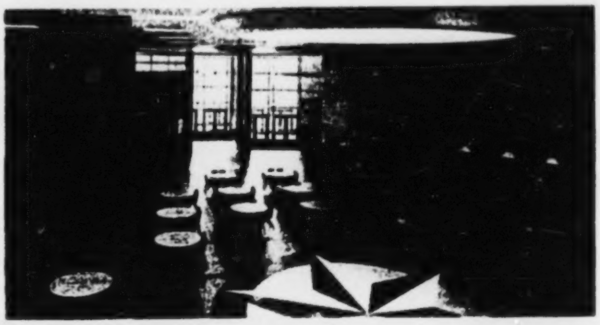
The initial design challenge was to de-institutionalize the building and incorporate new educational programs. The design team accomplished this by making circulation and way-finding easy through the creation of clear arrival points at pods or "neighborhoods."

Educational programs were arranged into academic pods: science, language, social studies, mathematics, technical educational, and applied technology. A clustering arrangement removed the classrooms from the main corridors, eliminating student hallway noise.

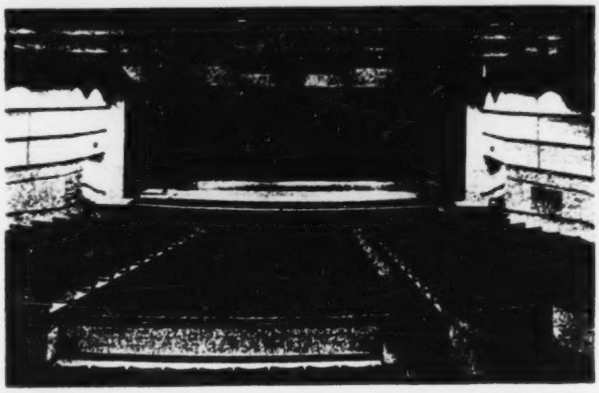
Each academic pod is arranged in a "U" with a computer-equipped resource area at the center. The design offers flexibility, allowing the building to adapt to different configurations with changes in teaching theories. Color schemes were also changed to give each pod its own identity.

Student access to the two main academic wings is accomplished by passing between the centrally located and voluminous commons and instructional media center. Students are able to overlook either space from a second-story skywalk. The two-story glass entry into the commons is further enhanced by the 22-foot circular skylight in the center and the ceramic tile compass rose directly below.

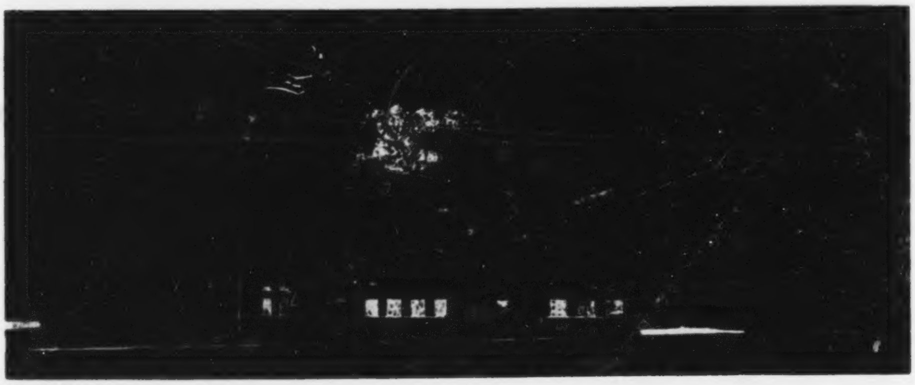
The building includes the fieldhouse, which opens to the commons as does the tiered, 600-capacity auditorium. The eight-lane swimming pool has independent locker rooms for after-hours use. ■



CAFETERIA



AUDITORIUM



EXTERIOR

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Kingscott Associates, Inc.
229 E. Michigan, Suite 335
Kalamazoo, MI 49007

Design team

Brook Godfrey, AIA
Project Director

Charles Nelson, AIA
Project Manager

Sarah Haselschwardt, AIA
Design Architect

Dana Trudo
Interior Designer

David Pike, RA
Project Architect

Ed Pfannes, PE
Mechanical Engineer

Brian Baratono
Electrical Engineer

Client

Grand Ledge Public Schools
(517) 627-3241

Grade span
9-12

Current building capacity
1,700

Current building area
300,000 square feet
(New: 161,000 square feet)
(Renovated: 139,000 square feet)

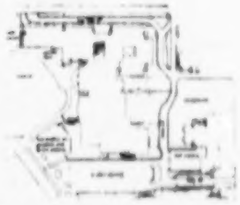
Total project costs
$26.47 million

Cost per square foot
$88

Space per student
177 square feet

Cost per student
$15,572

Completion date
December 1997



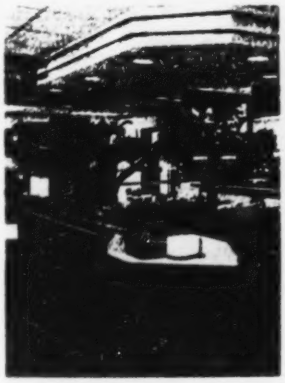
SITE PLAN

Grand Ledge High School
Grand Ledge, Michigan

Kingscott Associates, Inc.

This project transformed a 1950's high school into a building that supports tomorrow's programs and looks entirely new. To seamlessly integrate the 161,000 square feet of additions, new classroom corridors encase the perimeter. Work also included 139,000 square feet of renovations.

Major additions include an 800-seat auditorium, a competition gymnasium, six-lane natatorium, music/drama, and specialized as well as general classrooms.

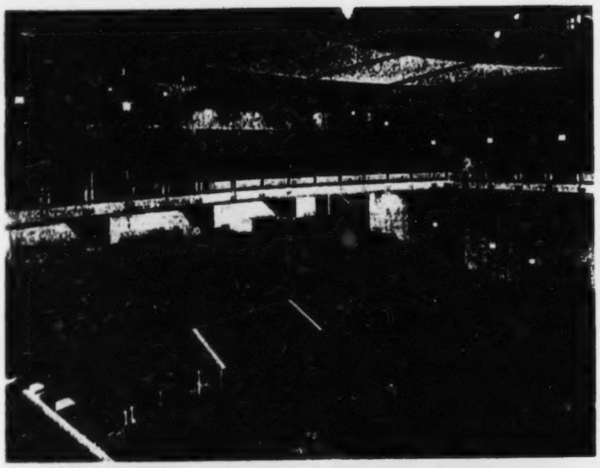


RENOVATED SERVERY

The project addressed all the academic departments, cafeteria, media center, administration/-guidance, athletic facilities, mechanical/electrical systems and interior finishes and fixtures.

The redesign also provided a new main entrance as well as a separate entrance for the auditorium, gym, and pool.

The building remained operational throughout the two-year long construction period. ■



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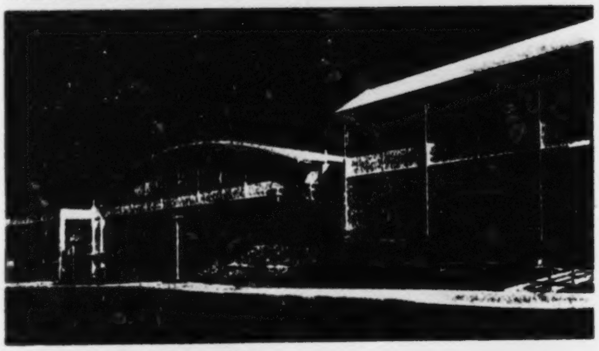
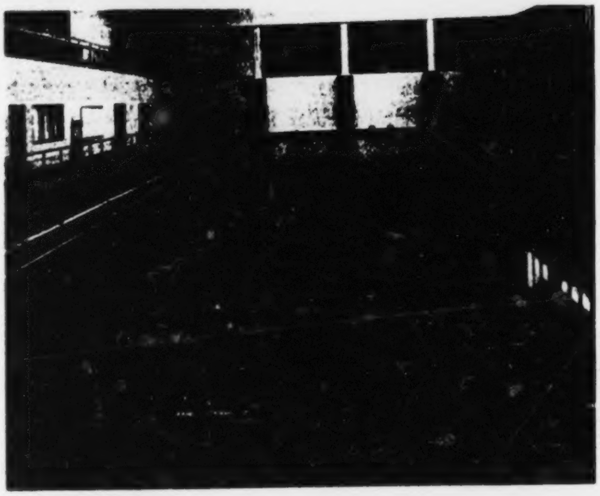
AUDITORIUM ADDITION



AUDITORIUM, GYM, POOL EXTERIOR



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NATATORIUM ADDITION

HIGH SCHOOLS
NEW CONSTRUCTION

HMC Architects

11682 El Camino Real, Suite 300
San Diego, CA 92310

Randal L. Peterson, AIA
(619) 794-5577

Design team

Randal L. Peterson, AIA
Project Designer

Stacy L. Strand, AIA
Project Manager

Client

San Diego Unified School District
(619) 293-8686

Grade span
9-12

Current building capacity
400

Current building area
68,600 square feet

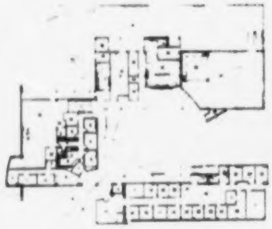
Total project costs
$10 million

Cost per square foot
$146

Space per student
171 square feet

Cost per student
$25,050

Completion date
July 1998



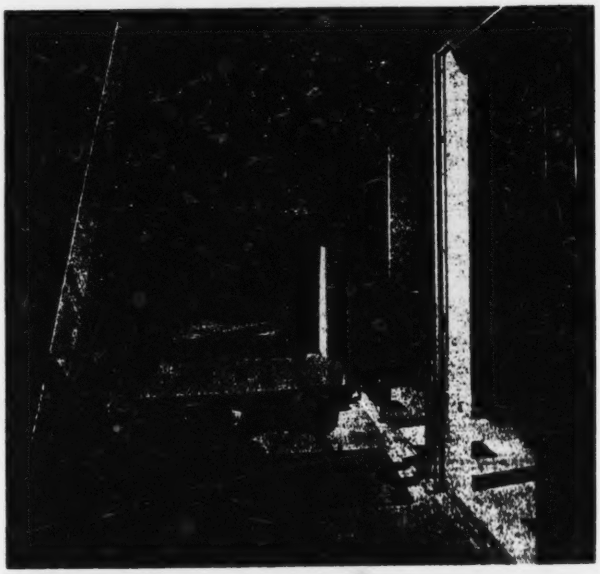
FLOOR PLAN

Garfield High School
San Diego, California

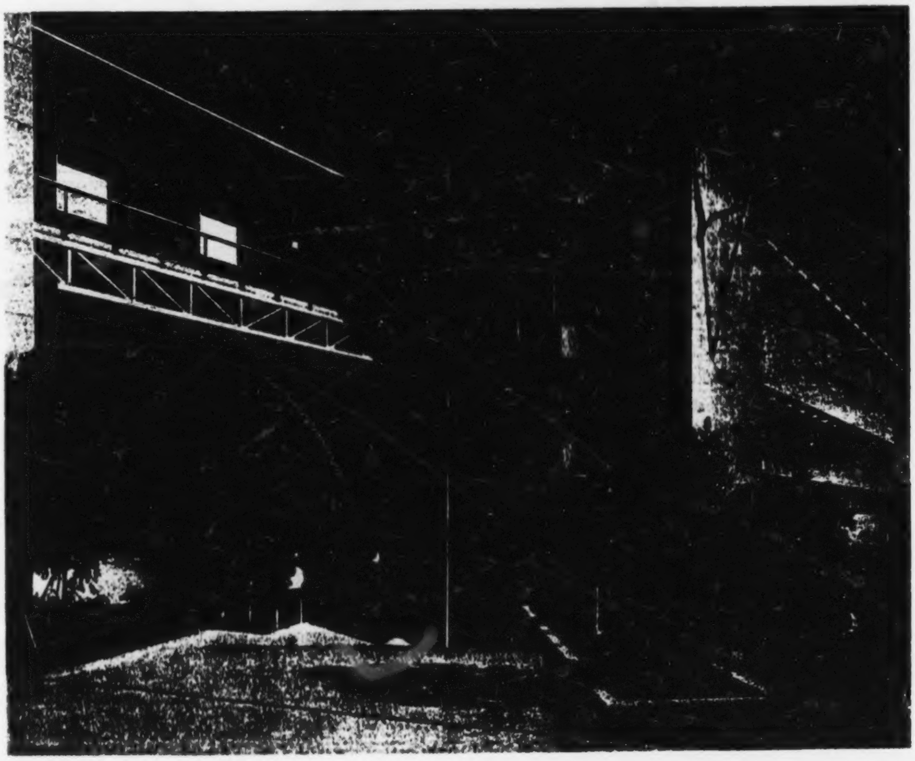
HMC Architects

This new urban continuation high school, located on the San Diego City College Campus, sets new standards for design and quality. The five-level school and three-level parking structure are located on a sloping urban site. The school site is organized in direct response to program needs and access, security, and supervision.

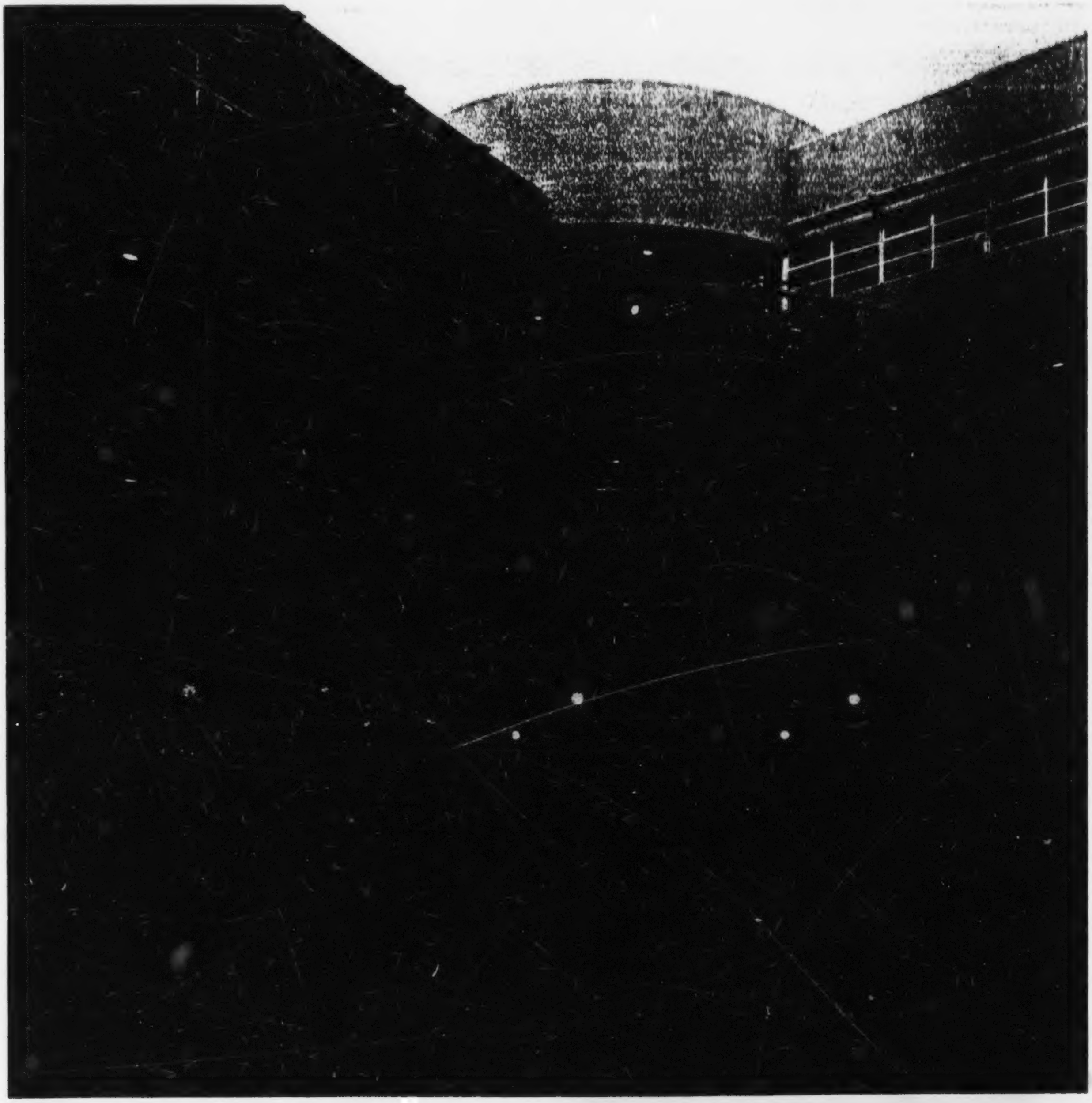
The buildings form a U-shape around the central courtyard with the south end amphitheater opening up to a view of the San Diego Bay. The design allows students to gather without encountering the



BALCONY



EXTERIOR

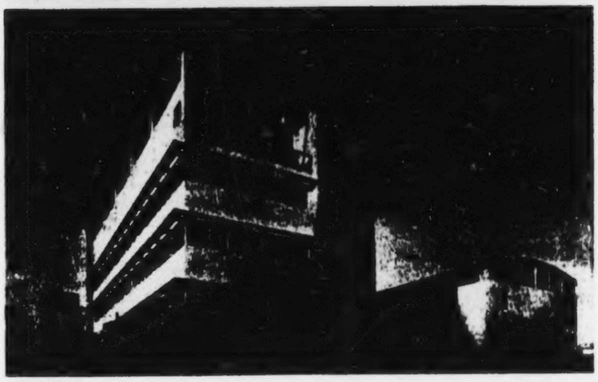


EXTERIOR

disruptions of the downtown environment and allows the staff to provide effective supervision for security and control.

The new school includes classrooms, science labs, ROP classrooms, technology classrooms, art and ceramic facilities, an administration area, a multipurpose room, a library/media center, conference facilities, a kitchen, daycare, pregnant minors program, and independent study facilities.

Due to the sloping site, four of the school's five levels can be accessed from the ground level without the need for an elevator. The project includes a new 129,000-square-foot parking structure. ■



EXTERIOR

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Gilbert Architects

626 N. Charlotte Street
Lancaster, PA 17603
Web site: www.gilbertarchitects.com

Thomas W. Gilbert, RA
(717) 291-1077

Design team

Thomas W. Gilbert, RA
Principal

Client

School District of Lancaster
(717) 291-3607

Grade span
11-12

Current building capacity
1,566

Current building area
337,564 square feet

Building area before addition/renovation
321,024 square feet

Total project costs
$18.58 million

Cost per square foot
$55

Space per student
205 square feet

Cost per student
$11,863

Completion date
September 1997

SITE PLAN

J.P. McCaskey High School Lancaster, Pennsylvania

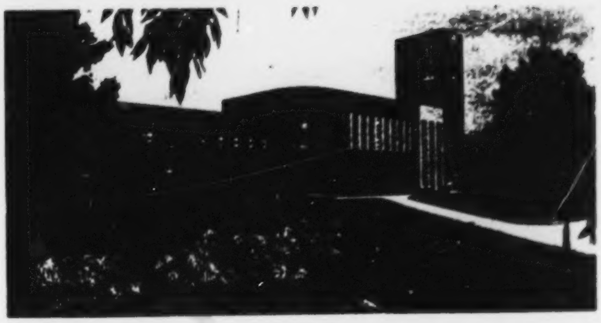
Gilbert Architects

The original J.P. McCaskey High School, built in 1938, was designed to support the educational program of that period. However, with the integration of technology and more specialized, advanced education required for jobs in business or industry, basic changes in the design of the learning environments were needed.

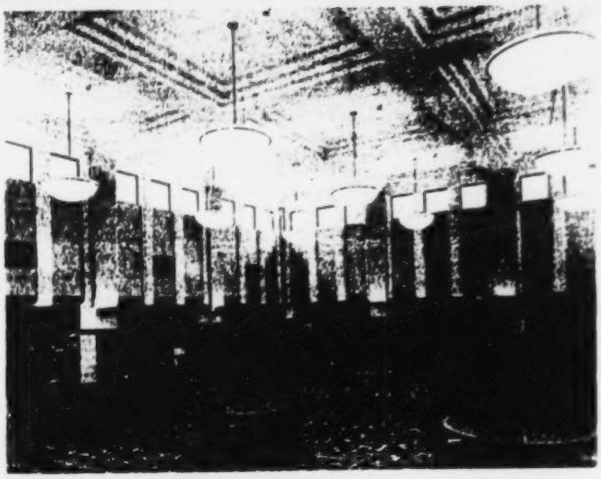
The core facilities in the school were designed to support a large student population. The auditorium seats 1,550, the cafeteria has a capacity of 1,200, and the gymnasium has a capacity of 1,875. From a design perspective, it was not practical to reduce the size of these facilities because they may be shared with students from the ninth- and tenth-grade facility also located on the McCaskey campus. These facilities are also used by the public for community activities.

Program offerings require instructional spaces that are larger than typical classrooms with standard square footage. Specialized areas include the media center, small- and large-group instruction areas, student project rooms, adaptive gym, locker and team rooms, faculty and instructional planning centers, student activity center, and administrative/health/guidance areas.

As a result of this recent renovation and addition project, J.P. McCaskey High School provides an achievement-based, future-oriented program of studies for today's students in an attractive environment that features past and present architectural designs. ■



EXTERIOR



LIBRARY

COMPUTER ROOM

HIGH SCHOOLS
NEW CONSTRUCTION

Grimm and Parker Architects

11785 Beltsville Drive, Suite 1400
Calverton, MD 20705
Web site: www.gparch.com

Stephen Parker, AIA
(301) 595-1000

Design team

Stephen Parker, AIA
President

Melanie Hennigan, AIA
Principal

Rick Morrison, RA
Project Manager

Paul Klee
Project Architect

Janann Mohring
Project Architect

Bob Widger
Project Architect

Client

Queen Anne's County Public Schools
(800) 336-7775

Grade span
9-12

Current building capacity
1,200

Current building area
189,785 square feet

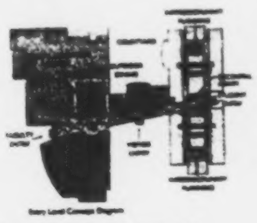
Total project costs
$17.9 million

Cost per square foot
$94

Space per student
158 square feet

Cost per student
$14,920

Completion date
August 1998



ENTRY-LEVEL PLAN DIAGRAM

Kent Island High School
Stevensville, Maryland

Grimm and Parker Architects

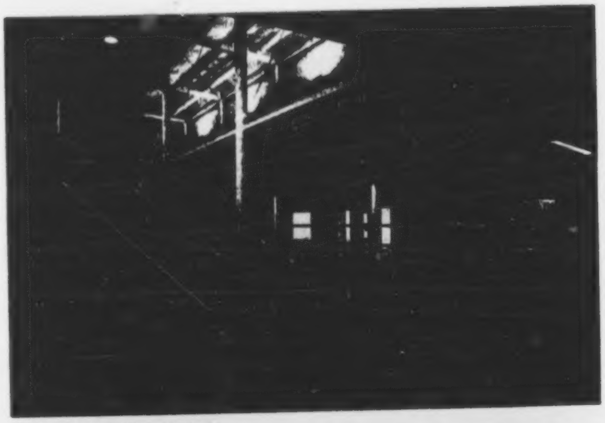
Here are the design concepts for Kent Island High School.

Program:

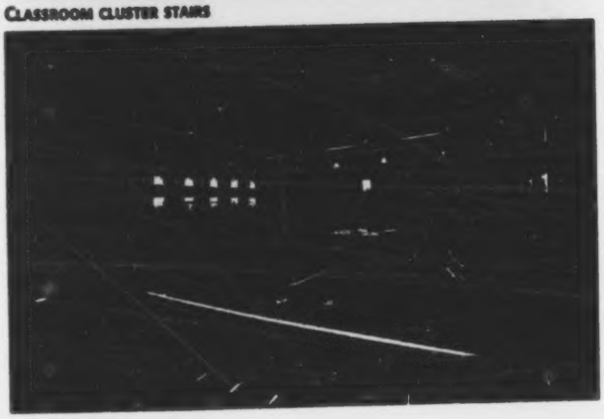
- Addresses the goals and educational philosophy of the owner.
- 1,200-student, state-of-the-art educational community where technology is a major component of the program.
- Academic/career-oriented cluster concept creates a sense of community.
- Small-community atmosphere within the larger building context encourages student and faculty interaction.

Building Design:

- The building plan is organized around a central main street.
- The main street is composed of dining (food court), student government, guidance/careers, school store, student announcements, attendance and administration spaces. Together these create a student and community gathering place.
- Architectural language reflects the nautical characteristics of the island region, furthering student and staff pride in the region's heritage.



CLASSROOM CLUSTER STAIRS



MAIN THEATER

Site Considerations:

- Program areas relate to site layout. Design adapts academic program into discrete parts, separately expressing physical education, student dining, performing arts, student services, media center, and academic cluster. Combining and assembling these parts with the effective ordering datum of the main street allows the entire project to be read as a rich whole. ■

EXTERIOR VIEW OF ENTRY

1999
CITATION
AWARD
WINNER

Lake Orion High School
Lake Orion, Michigan

URS Greiner Woodward Clyde

HIGH SCHOOLS
NEW CONSTRUCTION

URS Greiner Woodward Clyde

3950 Sparks Drive, SE
Grand Rapids, MI 49546
Web site: www.ursgreiner.com

Mitchell G. Watt, AIA
(616) 285-3500

Design team

William A. Stevenson, AIA
Principal-in-Charge

Jack H. Kerns, PE
Project Manager

Thomas A. Sturr, AIA
Project Architect

Steven P. Turnipseed, AIA
Design Architect

Linda Laughter, ASID
Interior Designer

Mark E. Wrona, ASLA
Site/Landscape Architect

URS Greiner Woodward Clyde
Project Engineers

Acoustical Design Group
Acoustical Consultant

Jones & Phillips
Theater Consultant

Client

Lake Orion Community Schools
(248) 693-5413

Grade span
9-12

Current building capacity
1,600 (with core for 2,000)

Current building area
377,756 square feet

Total project costs
$48.9 million

Cost per square foot
$129

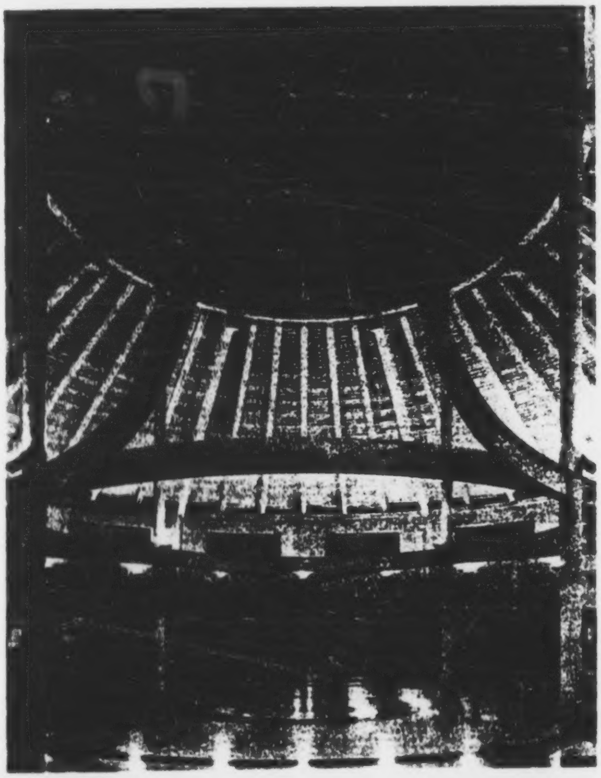
Space per student
236 square feet

Cost per student
$30,563

Completion date
September 1997

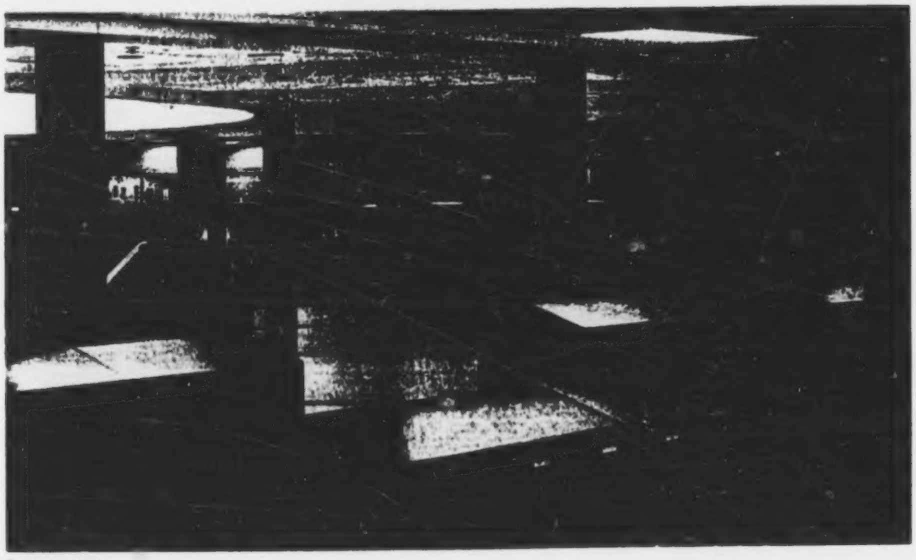
The community's vision for Lake Orion High School was to provide a state-of-the-art "research" facility that internally preserved the small, traditional, student-oriented high school of the past, while accommodating growth pressures that promised to propel the 900-student body to more than 1,600 by the year 2000.

Several main concepts were quickly decided. First, this facility would be the ultimate "community center;" therefore, all resources such as the 900-seat auditorium, the swimming pool, and the 3,400-seat gymnasium would be readily accessible from the main entrance. Second, the 1,600 students would be divided into 400-student "houses" that could function independently but would also have access to shared community facilities. Finally, a third concept was that the administrative area would be referred

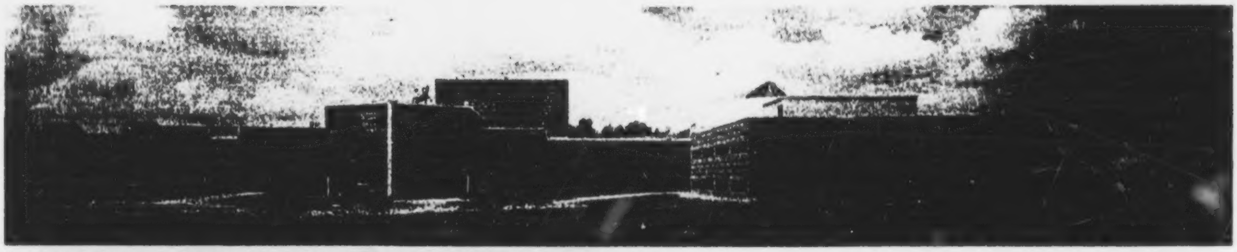


© Gary Quesada/Hedrich Blessing

SKYLIT CAFETERIA

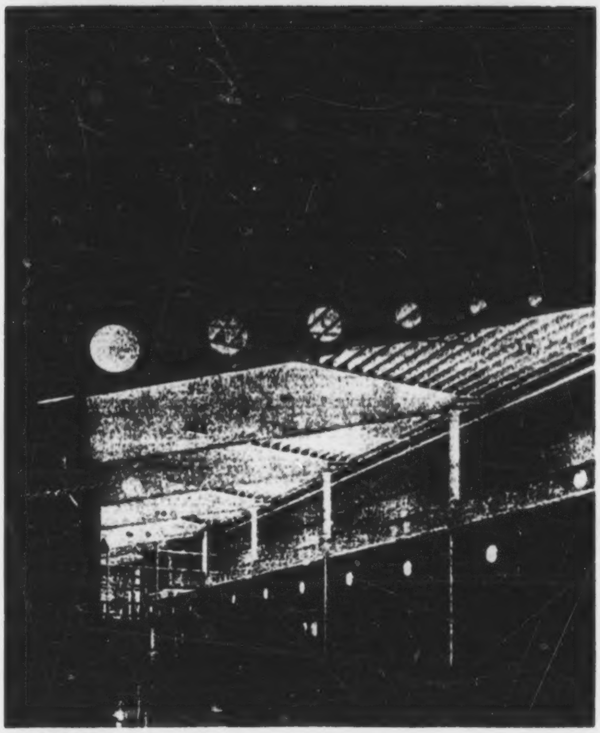


LOCKER AREA

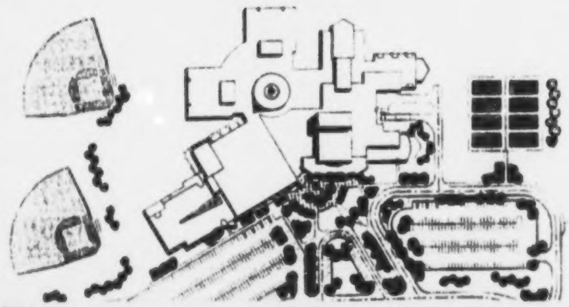


The rear elevation provides a view of the variety of massing used to add interest.

Auditorium facade



Entry concourse



Site plan

Large group instruction room

to as the student services center and would occupy the central position in the academic floor plan, typically reserved for the library.

Because the traditional library resources are accessible by computers from every classroom, the library was reconceptualized as a decentralized reading room and group research activity center. The tech-ed labs, studio classrooms, and science labs are located near the media center to create a high-tech resource center that supports the integration of critical thinking, research, and mechanical skills. ■

Second-story media center

The 900-seat theatre serves as a community resource.

HIGH SCHOOLS
NEW CONSTRUCTION

Fanning/Howey Associates, Inc.

1290 West Grand River Ave.
Williamston, MI 48895
Web site: www.fhai.com

George Kacan, AIA
(517) 655-1183

Design team

Michael Hall, AIA
Principal-in-Charge

Victor Landfair, AIA
Project Manager/Project Architect

Granger Construction Company
Construction Manager

Sandy Kate
Interior Designer

Thomas Greyerbiehl
Construction Administrator

Richard Dropik, CCS, EIT
Specifications Writer

Gerald Kinyon, PE
Structural Engineer

Alvaro Villalta, PE
Electrical Engineer

Ronald Hunt
Mechanical Engineer

Jeff Wright
Civil Engineer

Stuart Franzen, ASLA
Site Development

William Lord
Theater Consultant

Vorndran and Associates
Food Service Consultant

Yerges Acoustics
Acoustical Consultant

Client

Leslie Public Schools
(517) 589-8200

Grade span
9-12

Current building capacity
569

Current building area
131,443 square feet

Total project costs
$11.6 million

Leslie High School
Leslie, Michigan

Fanning/Howey Associates, Inc.

The new Leslie High School sits on a 40-acre site. Due to the high visibility of the building from both north and southbound US127, the school's main entry and parking face this major thoroughfare. The exterior features sloping, shingled roofs for an impressive and eye-catching façade. Both elements make this the flagship building of this small rural community.

The design of the facility truly serves the community, as it was developed out of extensive meetings and design charette sessions with students, staff, and community. The floor plan establishes needed separation of the two main areas of the facility—the academic area and the community area. For after-hours access the community area, including commons, kitchen, auditorium, band room, vocal room, gymnasium, and building support spaces, can be secured from the academic area, which includes the media center and individual

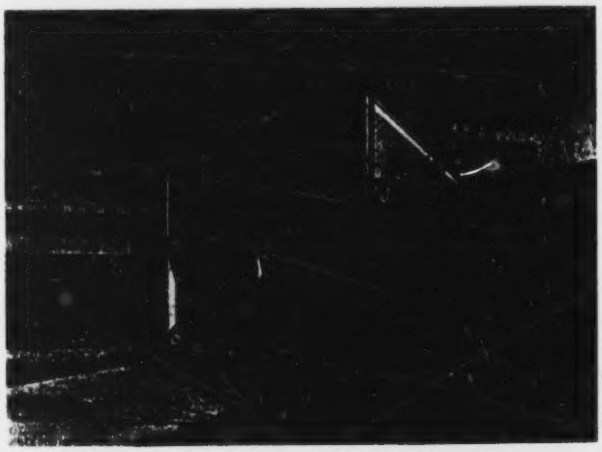
SITE PLAN

Cost per square foot
$88

Space per student
231 square feet

Cost per student
$20,384

Completion date
1997



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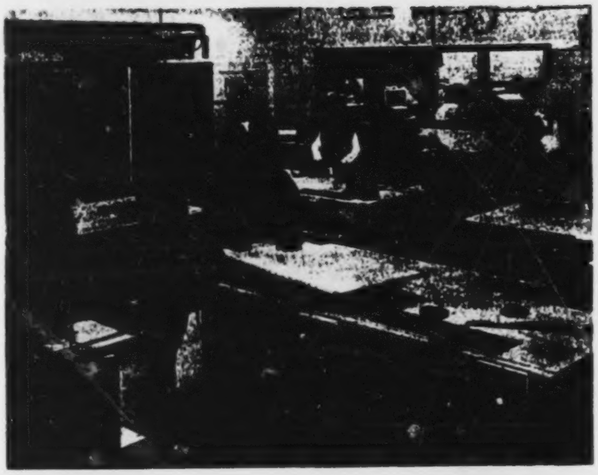
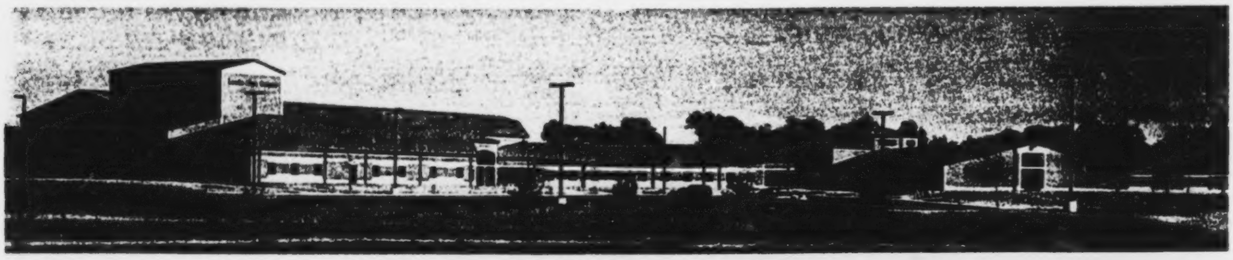
EXTERIOR ENTRANCE



TECHNOLOGY LAB

GYMNASIUM



EXTERIOR

AUDITORIUM

classroom spaces. The main entry provides access to the community areas, while a separate student entrance allows direct access/egress from the student parking lot to a central rotunda—a popular gathering point for the student population.

The academic area is accessible through the student rotunda off of which the classroom 'spokes' radiate. Each spoke is color-coded to identify "houses." The new Leslie High School facility is designed to function for either departmental or interdisciplinary curriculum delivery. Typical classrooms feature movable walls, which can be opened for team teaching of up to 50 students. Each room also features a sloped ceiling area that provides an overhead projection surface; fixed whiteboards provide a teaching surface that accepts multiple media.

The curved wall of the media center provides a focal point for the exterior. The raised ceiling and curved window wall on the interior allow for borrowed natural light and give a "large" feeling to a relatively compact area on the floor plan.

In direct response to the community's need for performance space, the community area of the high school features a 550-seat auditorium with balcony, projection room, fixed orchestra pit, full-fly loft, make-up/dressing rooms, scene storage, and stagecraft workshop. The commons serves as cafeteria seating during daily lunch periods with movable tables and as an overflow area for events hosted in the gymnasium or auditorium. ■

MEDIA CENTER

CLASSROOM

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Schmidt Associates, Inc.
320 E. Vermont Street
Indianapolis, IN 46204
Web site: www.schmidt-arch.com
Michael R. Eagan, AIA
(317) 263-6226

Design team

Michael R. Eagan, AIA
Partner-in-Charge, Religious

Steve L. Schaecher, AIA
Project Manager

Beth Wood
Project Architect

Bill Comus
Mechanical Engineer

David G. Shuck, PE
Electrical Engineer

Mike Southerland
Plumbing Engineer

Jones & Phillips
Theatrical Consultant

Boner Associates
Acoustical Consultant

Meyer Najem Corp.
General Contractor

Client

Greater Indianapolis Association for Lutheran Secondary Education
(317) 787-5474

Grade span
9-12

Current building capacity
400

Current building area
77,000 square feet

Building area before addition/renovation
54,000 square feet

Total project costs
$3.24 million

Cost per square foot
Classrooms: $78
Auditorium: $138

Space per student
175 square feet

Cost per student
$8,000

Completion date
April 1998

Lutheran High School
Indianapolis, Indiana

Schmidt Associates, Inc.

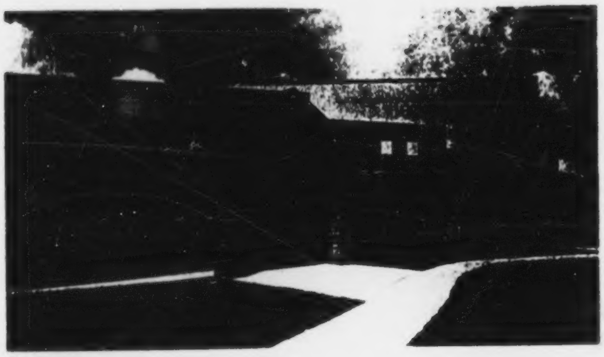
The foremost priority for the new Lutheran High School of Indianapolis was to create an atmosphere that would convey a family environment and stimulate interaction. Working closely with administrators, staff, and students, Schmidt Associates succeeded in carrying these elements through all three phases of the project.

Located at the heart of the school, the commons is an interactive gathering place. Its open design, defined by colorful pillars, welcomes visitors as they step through the main entrance. Ideal for both formal and informal activities, the commons radiates outward into the media center, administration area, gymnasium, and classroom wings.

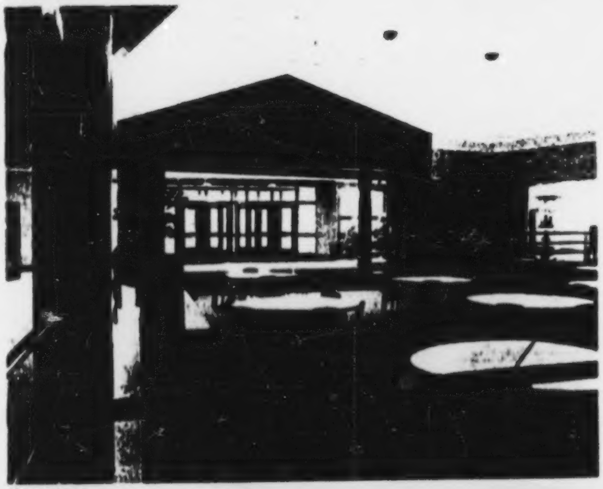
Like the commons, the prayer chapel's flexible design accommodates several functions, including peer counseling, small-group discussion, and individual meditation. Students can enter the chapel without ever opening a door, yet the rounded brick walls, skylight, and movable seating make the surroundings special and intimate.

The loop of circulation around the facility leads students and staff to the primary divisions of the school. The academic wing contains several general classrooms designed for multiple purposes. A distance learning lab allows students to connect with external systems as well as the media center. Rounding out this wing, which was the focus of Phase Two, are the science classrooms and the art room.

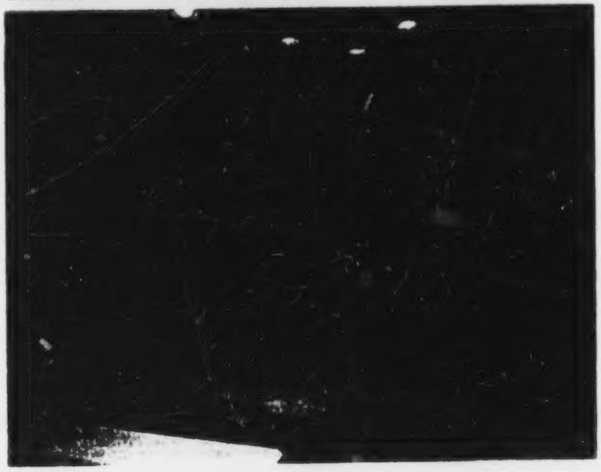
The adjacent athletic wing comprises a gymnasium,


© Schmidt Associates, Inc.

ENTRANCE



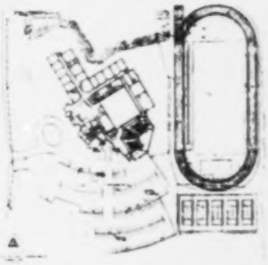
COMMONS



CHAPEL

634

LOBBY


SITE PLAN

AUDITORIUM

weight room, and wrestling room. Immediately outside, an all-weather running track and tennis court complex await student athletes. Parking extends from this area to the main entrance of the building, facilitating streamlined traffic.

The centerpiece of Phase Three is the 475-seat auditorium, located on the far west corner of the building. More than a proscenium stage, this state-of-the-art area features a semi-thrust design in which the stage projects out, allowing multiple activities to take place simultaneously. An orchestra pit, dressing rooms, and stagecraft area encompass the stage. This area can be accessed through a new entrance that leads to a circular lobby. Tickets and concessions can be purchased here as well.

To enhance the warm, personal atmosphere appropriate for a parochial school, vinyl wall coverings, carpeting, and wood furnishings were used throughout the building. These and many other features evolved through continuous interaction between the owner and architect. By making sure that nothing fell through the cracks, final costs were lower than originally anticipated, allowing the school to include additional amenities. ■

EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

RUHNAU RUHNAU ASSOCIATES

3775 Tenth Street
Riverside, CA 92501

Roger Clarke, RA
(909) 684-4664

Design team

David Ruhnau, AIA
Design Principal

Roger Clarke
Project Administration Principal

Joseph Calderon & Fa An Tan
Co-Designer

Denny Jones, AIA
Construction Administrator

Kathy Davis
Interiors & Graphics

Client

Lynwood Unified School District
(310) 886-1601

Grade span
9-12

Current building capacity
3,300

Current building area
445,696 square feet

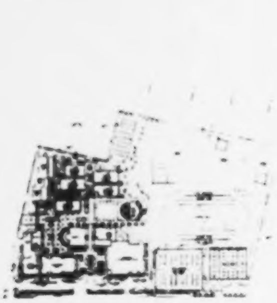
Total project costs
$52 million

Cost per square foot
$117

Space per student
95 square feet

Cost per student
$158

Completion date
August 1998



SITE PLAN

Lynwood High School
Lynwood, California

RUHNAU RUHNAU ASSOCIATES

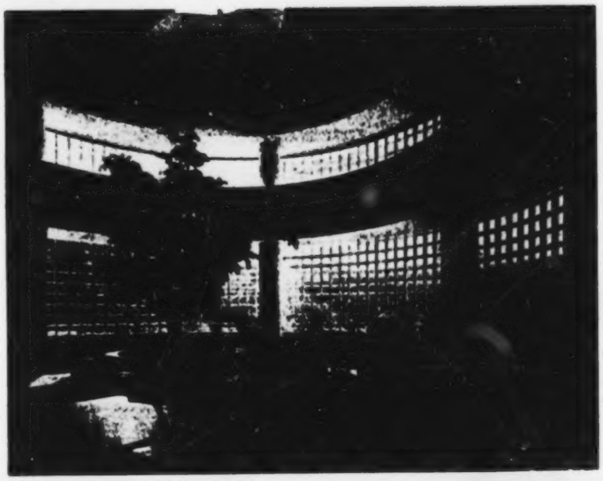
The architect's challenge was to accommodate 3,300 students in a comprehensive high school located on a limited urban site. The facility is designed around three distinct areas. The first, a community-oriented public court, is surrounded by the performing arts, gymnasium, library, and administration. All are designed to serve both the student population and the community.

The administration houses four areas, each with a separate entry. Those areas are the following: central administration, forming the main entry and housing the technology central distribution frame, adult education, student services, oriented to the student academic courtyard; and counseling, providing an area for one-on-one counseling.

The library/media center, an extension of the administration and student services areas, is separated from administration to allow for after-hours community use. Incorporated are specialized areas for a career center. An outdoor, stepped, reading/relaxation area is adjacent to the outdoor food court.

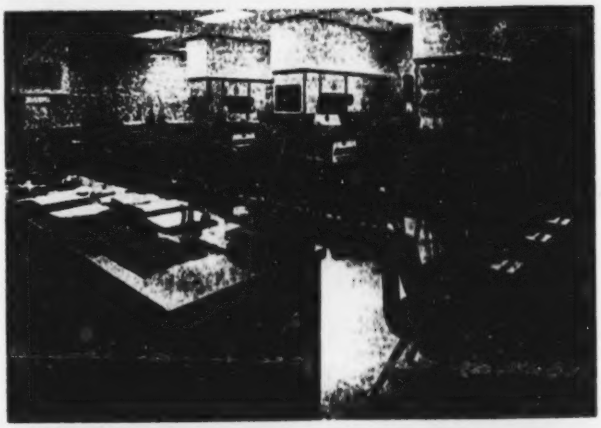
The performing arts facility incorporates a fully equipped little theater, oriented to the main public courtyard. Included are a practice theater/drama room, a 20-foot-high scene shop, choral and instrumental rooms, practice facilities, and dressing rooms. Adjacent is an area designated for a future daycare center.

The gymnasium includes a three-court configuration with separation/dividers, showers/lockers, and team rooms.



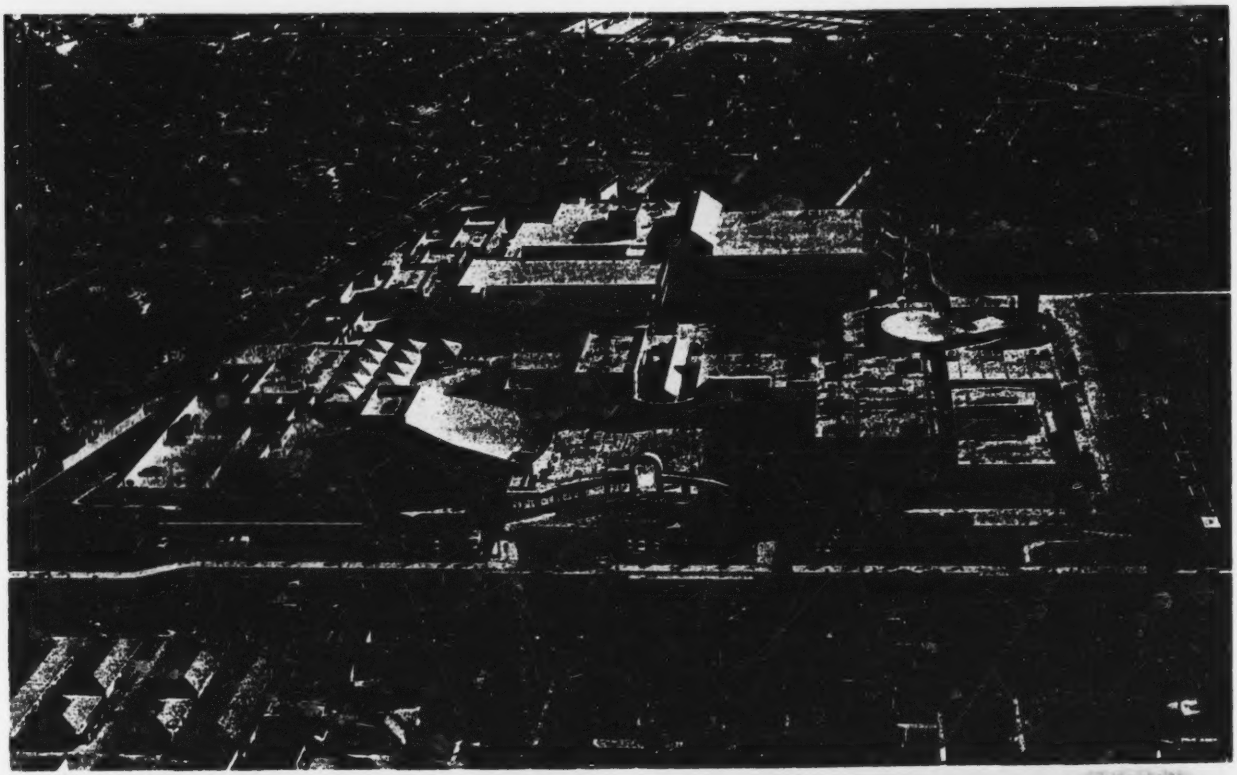
LIBRARY

© Wayne Thom Photographer

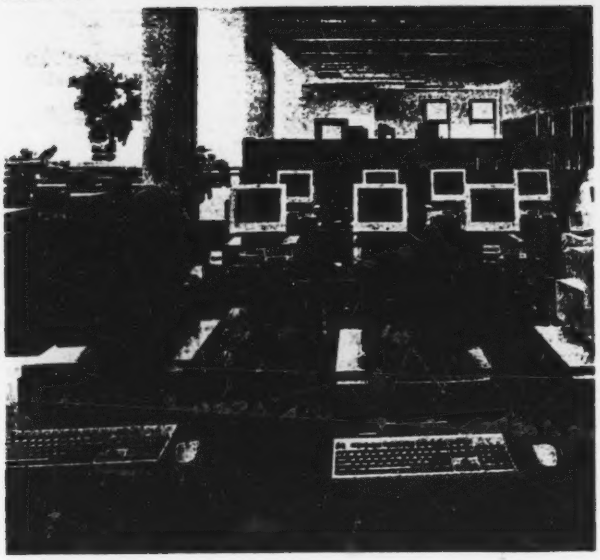


LABORATORY

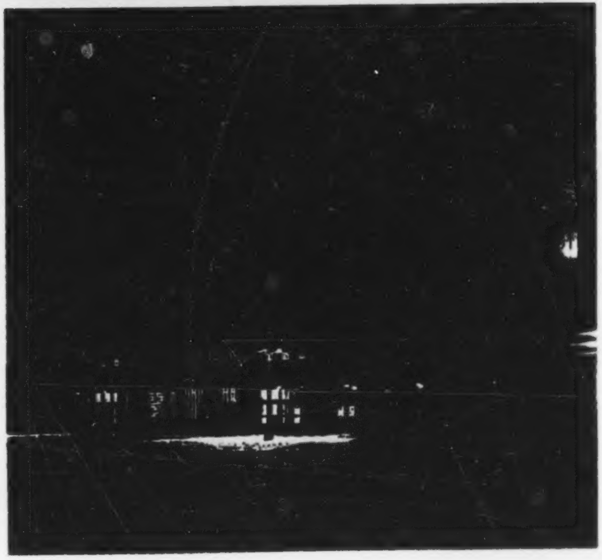
ENTRANCE



Aerial view



Library



Exterior

The second area of the campus comprises the main academic spine, including amphitheater, clock tower, and food services at each end. The three-story main structure is organized horizontally with social studies, special education, and graphic and fine arts on the first floor; English and language arts on the second floor; and math, science, and computer science on the third floor. Within each floor are faculty workrooms.

The second floor includes a divisible lecture hall designed to bring multiple classrooms together in a single setting. Specialized programs include a courtroom for mock trial programs, ROTC facilities, a green house adjacent to the biology laboratories, and a video production area. Each floor has technology rooms to house fiber-optic patch panels, hubs, and level-5 wiring for each classroom. A complete two-way broadband cable television system is incorporated with television monitors in each classroom.

The amphitheater/clock tower provides a student gathering point and a link to the sports fields. Eight lighted tennis courts are provided on top of an underground staff and visitors parking structure. ■

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Collins + Scoville Architects, P.C.

418 Broadway
Albany, NY 12207-2905

Randolph J. Collins
(518) 463-8068

Design team

Paul E. Scoville
Principal-in-Charge

Ron Bagoly
Scott Hillje
Peter Wolf
Architectural Design Team

Randolph J. Collins
Construction Management

Schaefer Associates
Mechanical Engineering

Mac Engineering
Electrical Engineering

C.T. Male Associates
Site Engineering

Client

Schodack Central School District
(518) 732-2297

Grade span
9-12

Current building capacity
475

Current building area
93,776 square feet

Building area before
addition/renovation
68,026 square feet

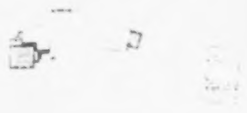
Total project costs
$5.9 million

Cost per square foot
$105

Space per student
197 square feet

Cost per student
$12,447

Completion date
September 1998



SITE PLAN

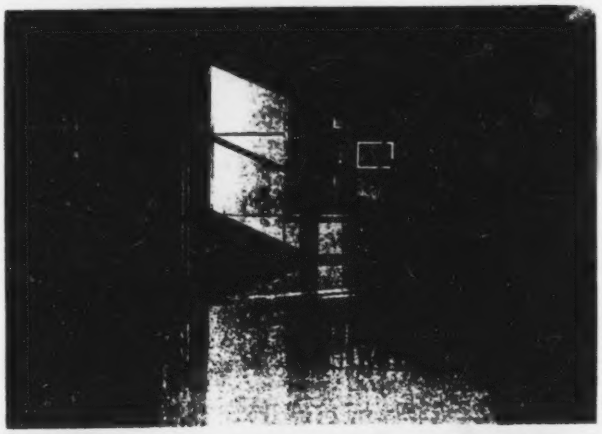
Maple Hill High School
Castleton-on-Hudson, New York

Collins + Scoville Architects, P.C.

The renovation and expansion of Maple Hill High School provides new classrooms to accommodate increasing enrollments and improves core facilities to meet current educational demands.

Working closely with the board of education, administration, and facilities committee, the design team arrived at solutions that maximized state building aid and addressed space limitations, enhancing the school's academic, athletic, and artistic capacities. New construction included a two-station gymnasium, locker rooms, lobby, a cafeteria addition, science labs, and classrooms.

Two features of the design offered unique, cost-effective benefits. The location of the classroom addition on a sloped portion of the site provided space a half-story below grade level to relocate district offices formerly housed in a trailer. Also, the new multipurpose auditorium/lecture space used the existing gymnasium/auditorium. By retaining the existing folding door and using new motorized retractable seating, the back half of the original wood floor gym accommodates physical education classes and community activities. The front half was reconstructed with a sloped floor and 200 fixed-tablet arm seats. A new stage at floor level provides superior site lines and handicapped access. The former locker rooms now house special education classrooms and a music suite near the stage. ■



ENTRY LOBBY

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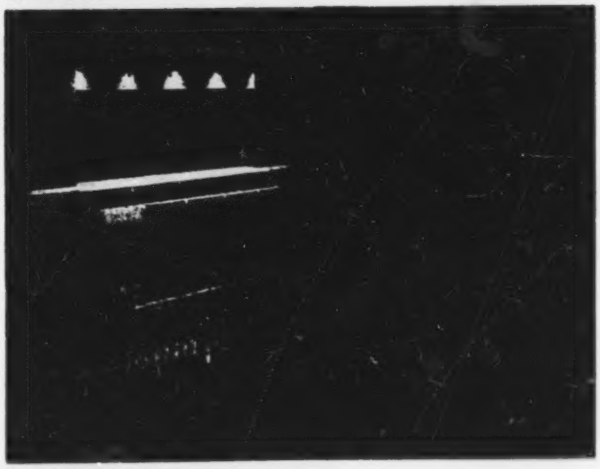
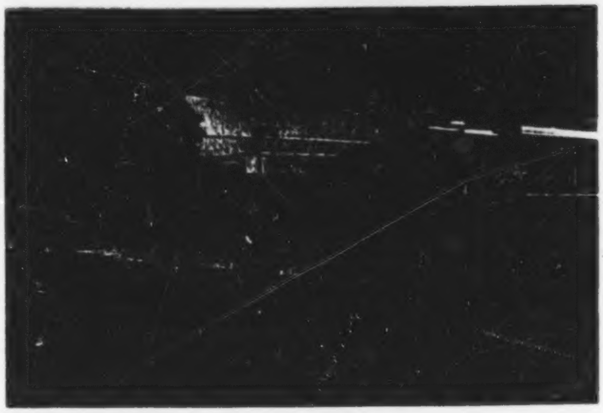


AUDITORIUM



ENTRY

HIGH SCHOOLS
New Construction

Armstrong, Torseth, Skold & Rydeen, Inc.

8501 Golden Valley Road, Suite 300
Minneapolis, MN 55427
Web site: www.atsr.com

Paul W. Erickson, AIA, President
(612) 545-3731

Design team

David Maroney, AIA
Project Architect

Paul W. Erickson, AIA
Project Manager/Educational Planner

Jim Lange, PE
Mechanical Engineering

Gaylen Melby, PE
Electrical Engineering

Robert Gunderson, ASLA
Landscape Architecture

Diane Taylor, CID, IIDA Associate
Interior Designer

Client

N. St. Paul/Maplewood/Oakdale
School District
(612) 770-4601

Grade span
9-12

Current building capacity
1,700

Current building area
265,000 square feet

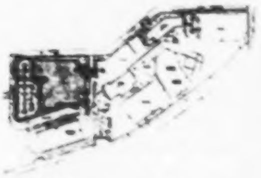
Total project costs
$22.8 million

Cost per square foot
$86

Space per student
156 square feet

Cost per student
$13,411

Completion date
Fall 1997



Site Plan

North High School
North St. Paul, Minnesota

Armstrong, Torseth, Skold & Rydeen, Inc.

The educational philosophy of North High School was developed with a curriculum based on traditional academic disciplines designed to reflect student diversity and global consciousness. Six "themes" were created to enhance the educational opportunities of the students: user friendly, community pride, technology, safety and zoning of building, interdisciplinary approach/ flexible educational spaces, and interaction between staff and students. These themes created a healthy environment conducive to teaching and learning, reflecting the true academic nature of the building.

The site was selected to maintain the original location of "Old North High," established in 1905. In an emotional process, the community overwhelmingly approved the necessary displacement of 37 homes and business properties in order to accommodate this mature, compact, urban site.

The challenge was to provide—all on 30½ acres—a comprehensive high school with room for a 43,000-square-foot expansion, parking for 800 cars, a 400-meter, eight-lane running track with field; the existing football stadium and hockey areas; practice fields, and a full-size soccer field. In addition, a portion of the existing Old North High would be converted into a district service center.

The solution was to develop a compact, multilevel high school design that reflects the scale of the neighborhood homes and enhances the natural site topography. In addition, there is a connection to the existing city park for use by the school and community. All of the challenges of this site were met, as well as preserving a continuous 1/4-mile green space on Highway 36.

The curriculum serves to teach creative and critical thinking and problem-solving skills as it prepares students to become contributing citizens within our society. This comprehensive high school focuses on the "whole student": mental, social, emotional, and physical. The semi-departmentalized curriculum (languages, math, and social studies) is interspersed with interdisciplinary teaming (science, technology education, living skills, and art).

The multilevel atrium, topped by an expansive skylight, draws in natural daylight to all three levels of the building core, creating a friendly learning environment. This atrium provides a central community area for students on all three floors.

Viewed as a "community of learners," there are innovative spaces for students to meet and interact across grade levels, as well as places for staff to interact professionally and socially. This facility visibly supports a commitment to lifelong learning by creating a healthy environment that is safe and inviting, where students, staff, parents, community members, and senior citizens can interact comfortably in a variety of settings.

The dramatically sloping site allowed for the creation of a two-level public concourse with shared lobby space and direct access to various building areas of community use as well as for students and staff.

©Ralph Berlowitz

Exterior

Corridor

Cafeteria

The mechanical system uses an energy-recovery system, which exchanges tempered exhaust air with fresh outside air.

A centralized media center and telecommunications center provide access to voice, data, and video networks, with broad interdisciplinary uses for both students and staff. The educational philosophy includes the building's adaptability for future trends and technological advances. ■

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Architectural Design West, Inc.

533 S. 700 East
Salt Lake City, UT 84102
Web site: www.dsgnwest.com

Gary M. Acord, AIA
(801) 539-8221

Design team

Gary M. Acord, AIA
Principal-in-Charge

Scott Theobald, AIA
Project Architect

M. Keith Sorenson, AIA
Educational Facility Planner

Client

Park City School District
(435) 645-5600

Grade span
9-12

Current building capacity
1,500

Current building area
155,500 square feet

Total project costs
$16.3 million

Cost per square foot
$105

Space per student
104 square feet

Cost per student
$10,877

Completion date
1998

Park City High School
Park City, Utah

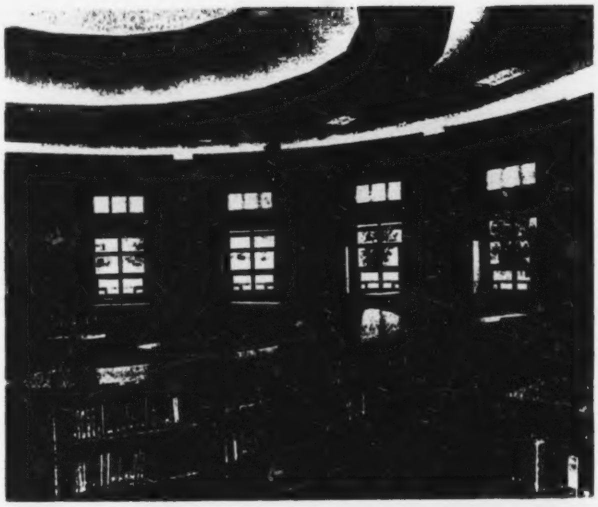
Architectural Design West, Inc.

Park City School District's focus, for the expansion and renovation of its only high school, was to accommodate a student population that had doubled, expand and modernize an inadequate library, and incorporate an auditorium into the school.

Through work sessions with the owners, the design doubled the capacity of the school from 750 to 1,500 students. Forty new classrooms are designed in a "habitat" arrangement, clustering courses such as mathematics, sciences, applied technology, and languages into "learning neighborhoods." This intermingling encourages cross-curricular activity between teachers and students, enhancing the learning environment. Each classroom features natural daylighting.

The new media center features a spacious layout with natural daylighting and a state-of-the-art media retrieval system. A professional library is incorporated to facilitate teacher and staff needs.

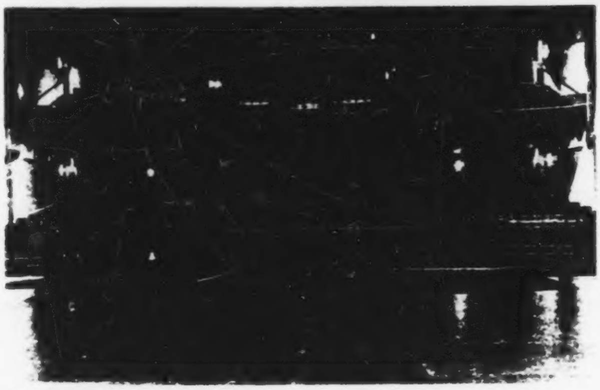
Due to community support, the original desire for an auditorium was upgraded to the ability to build a performing arts center. The auditorium has seating for 1,000 on the main floor and 300 in the balcony. Other features include a full-height fly loft, a symphony quality orchestra pit, a 189-seat black box theater, choral and instrumental music rooms, a lobby, and green rooms. The contract-performance quality sound system ensures the sound integrity for performers and listeners. ■



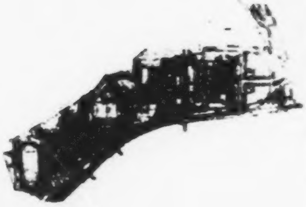
LIBRARY

©Rick Peterson Photography

MUSIC ROOM



AUDITORIUM



SITE PLAN

640

HIGH SCHOOLS
NEW CONSTRUCTION

DLR Group

7421 W. 129th Street, Suite 100
Overland Park, KS 66213
Web site: www.dlrgroup.com

Jim French, AIA, NCARB
(913) 897-7811

Design team

DLR Group

Client

Park Hill School District
(816) 741-1521
Gordon Carruth, Superintendent

Grade span
9-12

Current building capacity
1,600

Current building area
254,000 square feet

Total project costs
$24.13 million

Cost per square foot
$95

Space per student
159 square feet

Cost per student
$15,081

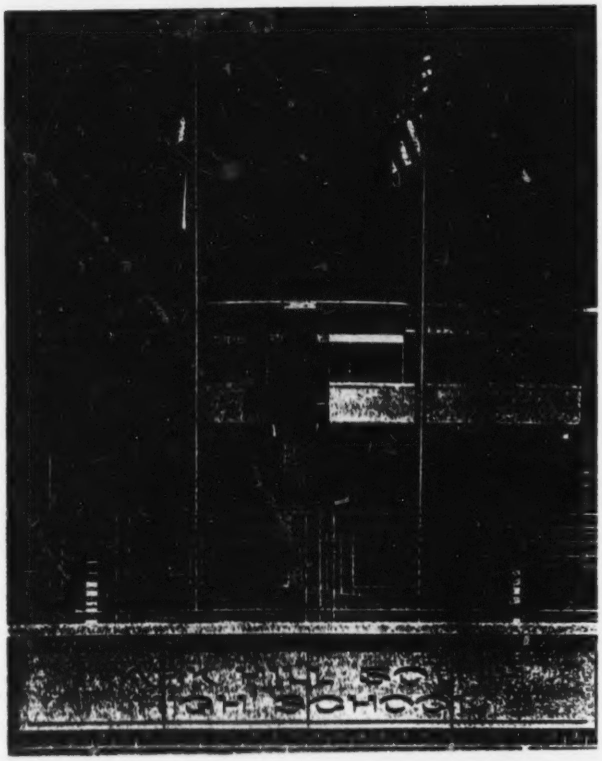
Completion date
August 1998

Park Hill South High School Kansas City, Missouri

DLR Group

Created to relieve a quickly growing student population and to energize a new curriculum, this unique 1,600-student high school design promotes flexibility in instructional group sizes, increased personalized instruction, and higher student usage of technology. Utilizing a "4x4 block schedule," the design allows for interdisciplinary team teaching while accommodating departmental instruction. Future curriculum flexibility is ensured via the several possible group sizes, student arrangements, and instructional methods the facility will support—including four 400-student houses (for grades 9-12), individual grade houses, or traditional departmentalization.

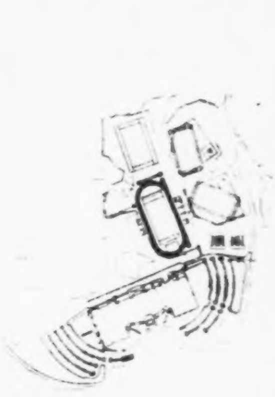
A centrally located two-story informational technology media center, with multimedia production rooms, is surrounded by the academic houses. By dividing each house into two 200-student "families," personalized instruction is further enhanced. Each "family" contains a teacher-planning center, language arts, social studies, foreign language, math, science lab, and two feature classrooms with an electronic library for research, special projects, and group activities.



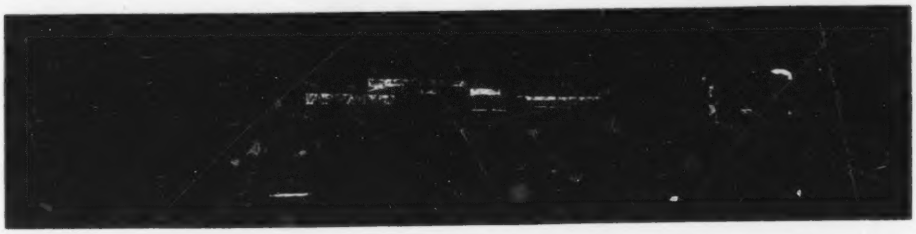
ENTRANCE

The gymnasium mural captures the school colors and its mascot: a pride of panthers. The 254,000-square-foot building has a semicircular main entrance that celebrates the centralized 900-seat auditorium and performing arts center. The 71-acre site, high on a bluff, offers a commanding view of the Kansas City skyline. ■

CAFETERIA



SITE PLAN



EXTERIOR

HIGH SCHOOLS
NEW CONSTRUCTION

Dull Olson Weekes Architects

319 SW Washington, Suite 200
Portland, OR 97204
Web site: www.dowa.com

John Weekes
(503) 226-6950

Design team

John Weekes
Principal-in-Charge

Mark Siemieniec
Susan Emmons
Doug Nelson
Jeff Johansen
Project Team

Client

Parkrose School District
(503) 408-2100

Grade span
9-12

Current building capacity
1,000

Current building area
220,000 square feet

Total project costs
$24 million

Cost per square foot
$109

Space per student
220 square feet

Cost per student
$23,980

Completion date
December 1997

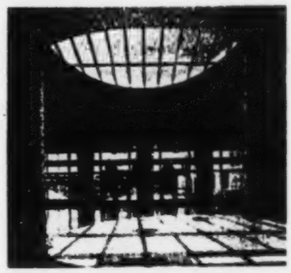
Parkrose High School Community Center
Portland, Oregon

Dull Olson Weekes Architects

The architect provided pre-bond facility planning, master plan studies, and full architectural design services for the new Parkrose High School Community Center.

The architect worked with Parkrose School District to facilitate a community-based design effort knows as "VISIONING 2000" to envision and design a new high school. Working with more than 350 community/staff members in "town hall" sessions and with 120 community/staff members in focus group sessions over a three-month period, a new mission and emphasis emerged. The result was to create a combined community center and high school. The conclusions were that educational needs and community services should be combined to establish a new central hub for the Parkrose community.

In essence, the central project goal was to develop a center for the community and a place for lifelong learning. Parkrose has a strong sense of community but lacked a place for people to gather and hold events. This building was designed to fulfill that need.



ROTUNDA

CLASSROOM

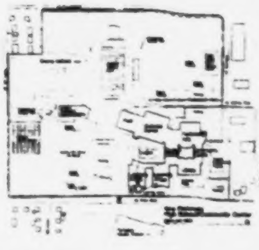
As directed by the vision of the community, Parkrose High School and Community Center is a community within itself for all to use. It features the following:

- Learning areas with 20 "seminar" or classrooms and offices (115,000 square feet).
- Student commons with food services, marketplace, and student activities (14,400 square feet).
- Performance arts center with 600 seat auditorium; classrooms for drama, band, and choir; and television and radio studios (21,000 square feet).
- Public library/media center with career center (10,200 square feet).
- Community/senior center with a health clinic, police office, and multipurpose and art rooms (11,000 square feet).
- Wellness/fitness areas with gym/multipurpose space and training and weight rooms (37,000 square feet).
- Aquatics center (enclosed), with expandable 25 to 50 meter pool (13,000 square feet).

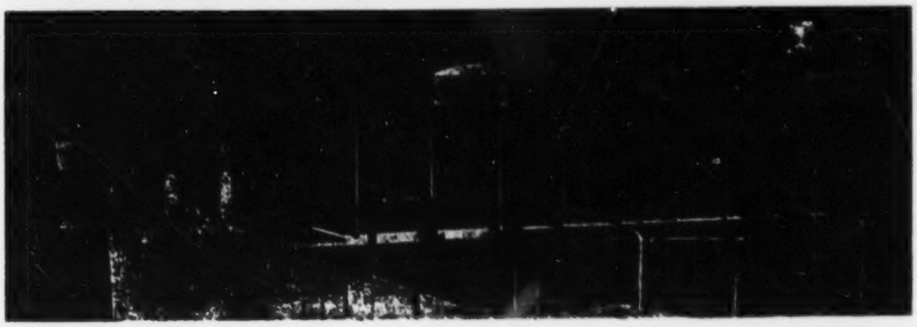
The building is essentially two parts: active learning (performing arts center and wellness center) and academic learning (library, seminar rooms, and large-group rooms) linked by the student center and community center.

Two exterior courtyards were created. The east courtyard, bordered by the community center and performing arts center, responds to the community agenda. The west courtyard, bordered by the learning areas and student center, is primarily an outdoor student plaza.

This project is the recipient of the 1998 William J. Caudill Citation in *American School & University*'s Architectural Portfolio Competition. ■



SITE PLAN



EXTERIOR

HIGH SCHOOLS
PROJECT IN PROGRESS

L. Robert Kimball & Associates

21 W. Washington Street, Suite F
West Chester, PA 19380

David L. Schrader, AIA
(610) 692-2232

Design team

David L. Schrader, AIA
Thomas Woods, AIA
William Cox
Jason Rice
David Marsh, PE
Edward John, PE
Robert Swayne, PE
Mark Franz, PE
Greg Schrock, EIT
Sterling McClure
Edward Kirkbride, RA

Client

Rose Tree Media School District
(610) 565-1200

Grade span
9-12

Current building capacity
1,600

Current building area
270,000 square feet

Building area before
addition/renovation
205,000 square feet

Penncrest High School
Media, Pennsylvania

L. Robert Kimball & Associates

The Penncrest High School additions and renovations are designed to allow a building constructed in the 1950s to accommodate growth from 1,200 to 1,600 students. While completing this renovation, the facility will also be improved to accommodate the variations in instructional delivery methods that the educational spectrum has seen recently and will see in the next 20 years.

The existing 205,000-square-foot facility will have programs shifted throughout the building to enable the core student services to be offered at the center of the facility. Additions will be constructed to encompass the increased athletic department program, and a new administrative complex will be built at the center of student circulation. The auditorium will be completely renovated, and new music rehearsal spaces will be added to accommodate the new music program. Distance learning and conferencing spaces will also be added to allow for new methods of teaching. The site has also been redesigned to improve the athletic fields and to improve vehicular circulation.

The final product will be a building divided into technology areas, performance spaces, student services, athletic areas, and general classroom areas. The resulting facility will enable the Rose Tree Media School District to shepherd its educational programs into the 21st century. ■

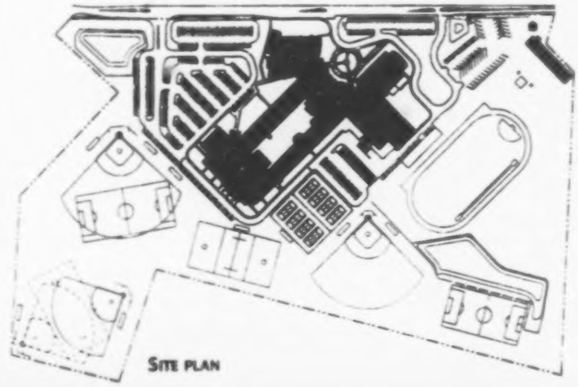
Total project costs
$21 million

Cost per square foot
$78

Space per student
169 square feet

Cost per student
$13,125

Completion date
December 1999



SITE PLAN

©EDWARD DUMONT

RENDERING

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Lesko Associates, Inc.

Gemini Tower II, 2001 Crocker Road,
Suite 200
Cleveland, OH 44145
Web site: www.lesko-associates.com

Nicholas Lesko, FAIA, President
(440) 835-0850

Design team

Nicholas Lesko, FAIA
Administrator

Edward G. Lesko, AIA
Design

Robert W. Blatchford, Jr., AIA
David A. Andreano, AIA

Client

Revere Local School District
(330) 659-6111

Grade span
9-12

Current building capacity
1,100

Current building area
190,293 square feet

Building area before addition/renovation
161,284 square feet

Total project costs
$2.47 million

Cost per square foot
$85

Space per student
145 square feet

Cost per student
$12,363

Completion date
1996

SITE PLAN

Revere High School
Richfield, Ohio

Lesko Associates, Inc.

The district, located in a suburban-rural area with high academic achievements and standards, wanted to update and provide additional facilities at the high school to adjust to changes in science, education, and technology. To meet these goals, science labs, a graphics area, a television studio, and a state-of-the-art media center were incorporated into the plans.

A unique design with its forms, materials, use of glass, and general detailing was developed, distinctive in its own right, but comfortable with the existing building. The new addition was located at the end of a two-story academic wing along a major road, providing high visibility while creating an "academic statement." The technology "heart" of the addition is the media center.

The media center on the second floor, along with a graphics lab and television studio, has an abundance of natural light and a feeling of spaciousness. A clerestory and generous, well-placed windows create an atmosphere conducive to media/library activities. On the ground floor are user-friendly science and computer labs that are spacious with natural light.

INTERIOR

EXTERIOR

EXTERIOR

Designed with durable materials, the building has a steel frame (columns, beams, and joists) with exterior brick and interior concrete block walls. The interior is painted with V.C.T. and floors are carpeted. For energy efficiency the spaces are served by gas-fired air-handling units that provide cooling and heating ■

HIGH SCHOOLS
NEW CONSTRUCTION

1999 CITATION AWARD WINNER

Rio Rancho High School
Rio Rancho, New Mexico

John Friedman, AIA Architect PC

John Friedman, AIA Architect PC

P.O. Box 328
Los Lunas, NM 87031

John Friedman
(505) 865-0111

Design team

John Friedman, AIA
Principal

Gregory Hartman, AIA
Project Architect

Dr. Richard F. Tonigan
Planning Consultant

Client

Rio Rancho Public Schools
(505) 896-0667

Dr. V. Sue Cleveland
Superintendent

Richard Herrera, REFP
Facilities Director

Grade span
9-12

Current building capacity
2,400

Current building area
335,000 square feet

Building area before addition/renovation
N/A

Total project costs
$29 million

Cost per square foot
$87

Space per student
140 square feet

Cost per student
$12,083

Completion date
August 1997

This design responds to an academy-based curriculum that subdivides the traditional high school into smaller subject-based academies. High-quality interior and exterior public spaces invite community access to this fast-growing southwestern town's first high school.

Rio Rancho High School, a 2,400-student, 335,000-square-foot facility, was built on 80 acres against a tan sandstone bluff. it is the first high school for a new school district at the center of a fast-growing southwestern town. The challenge of this project was to develop a school that could open in 16 months while responding to an academy-based curriculum and the community's need for high-quality public spaces.

The project was built in 16 months for $30 million, provided by a local high-tech corporation, and constructed at 20 percent less per square foot than comparable projects by using a design/build/fasttrack construction process.

The school incorporates an academy-based program in which students select an academic focus (first year, humanities, arts, science, business, and technology) to break the large school into separate small communities of learners, each averaging 480 students.

©Kirk Gittings

AUDITORIUM

The architects set six simple two-story, tilt-up concrete buildings around two courtyards. Each academy is built from repetitive elements and planned to maximize views and natural light to classrooms while clustering the support spaces at the building core.

Each academy is linked to the central courtyard space by a monumental entry deck and stairway. The courtyard has become a vibrant social center for the entire school, eliminating the need for large interior hallways.

The media center, gym, cafeteria, and theater are designed to accommodate large community events. For example, the theater has a full-fly loft, an orchestra pit, and professional theatrical equipment. It can support educational and professional performing arts events.

The school district was determined to provide a "21st century education" to every student. The design features state-of-the-art voice/video/data networking and PC workstations in most spaces. ■

ACADEMIC COURTYARD

LABORATORY

SITE PLAN

BEST COPY AVAILABLE

HIGH SCHOOLS
NEW CONSTRUCTION

**Wakely Associates
Mt. Pleasant, Inc.**

131 S. Main Street
Mt. Pleasant, MI 48858

John P. Jensen, AIA
(517) 773-9945

Design team

John P. Jensen, AIA
Principal-in-Charge

John E. Haas, AIA
Designer

Harold M. Boog, AIA
Project Manager

Anthony E. Khalil
Job Captain

Earl Hartman, PE
Mechanical Engineer

Dion Dixon, PE
Electrical Engineer

Client

Shelby Public Schools
(616) 861-5211

Grade span
9-12

Current building capacity
600

Current building area
116,000 square feet

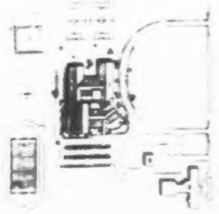
Total project costs
$10.3 million

Cost per square foot
$89

Space per student
193 square feet

Cost per student
$17,160

Completion date
December 1997



SITE PLAN

Shelby High School
Shelby, Michigan

Wakely Associates Mt. Pleasant, Inc.

A unique exterior design, complete with proven educational and technical concepts within, provide the community of Shelby with a true educational and social center. This steel and masonry building is highlighted by a key element of identity: school colors. Colors are expressed in glazed masonry and used as ornament.

Nestled at the base of a wooded hill, among the apple orchards and shoreline vistas of western Michigan, the school's deep colors and brick patterns blend with the landscape. Wakely Associates and the community jointly developed a high school concept with components of advanced technology, comfortable classrooms, staff amenities, a performing arts center, competition athletic facilities, and a community center. An earlier failed attempt at combining high schools with a neighboring district helped unify the community and define its needs. The new vision became one of quality, efficiency, and identity.

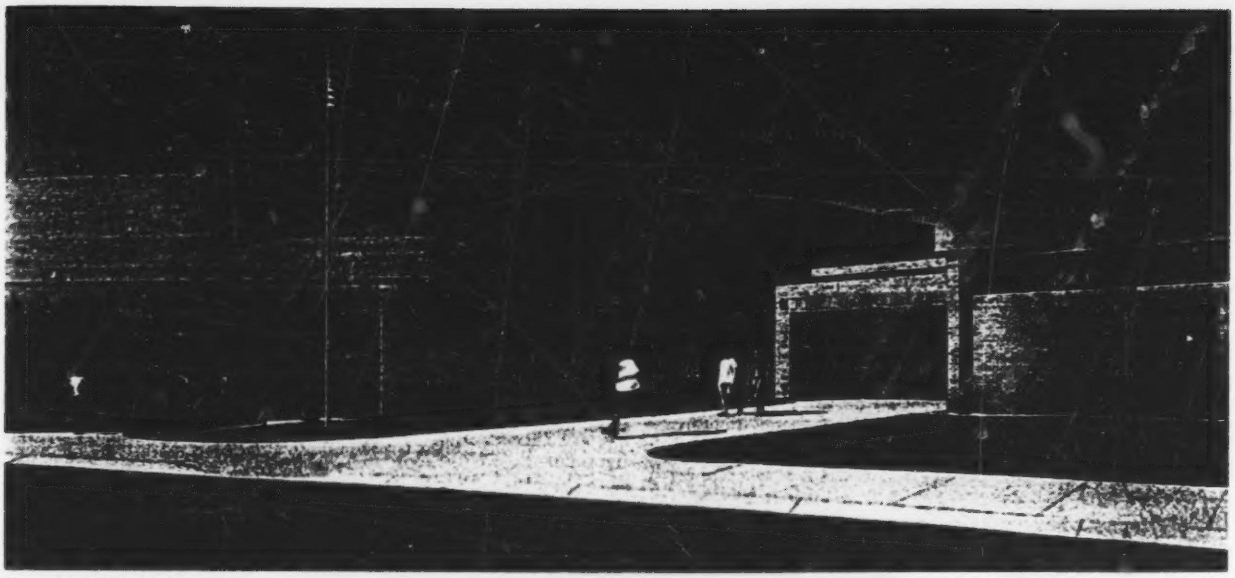
The student body is wel-

©Dale Wieck Photography

CORRIDOR

MAIN STREET AT STUDENT STORE AND MEDIA CENTER

MAIN STREET CORRIDOR



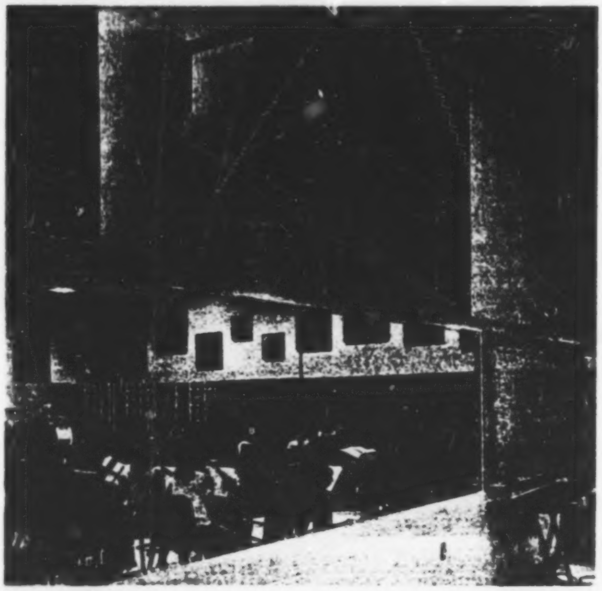
Community and student entrance

comed daily by a nurturing environment of socialization, fine arts, science and technology. Unique colors, terrazzo floors, and indirect lighting add to the comfortable environment. Classroom wings are divided by discipline. Roofs are sloped and covered in a gray Hypalon synthetic roofing membrane. Windows are operable in each classroom. Corridors utilize natural light.

A four-pipe fan coil HVAC system provides heating and cooling on an as-needed basis. The system is very economical both in first cost and operations. Its flexibility enables future expansion.

The community auditorium seats 650 in a quality acoustical environment. Computer-generated sound pattern studies helped determine materials, surfaces, and acoustical cloud placement. Sound and lighting controls can be operated from a number of remote locations within the facility. The auditorium and music areas are sound isolated from the rest of the building.

Athletic programs were an important part of this building project for both community and school. A three-court gymnasium with bleacher seating for 2,000 provides a venue for tournaments never realized in previous years. Outside facilities include a football field, track, softball fields, and practice fields.



Music room

Auditorium

Student life (socialization) is enhanced by an entrance foyer with a main street concept. The media center, student store, career center, auditorium, and cafeteria/commons area are visible and accessible from the main street through transparent and articulated window walls, enhancing a community atmosphere. Interior appointments promote a cool, calming effect. Hallway benches, student commons areas, and expansive foyers encourage students and staff to socialize.

Teaching staff input provide for the inclusion of preparation/office spaces, resulting in an assemblage of primary and support spaces for each academic discipline. Flexible math/science labs enable fuller integration of math and science disciplines. The implementation of block scheduling was anticipated in planning. To facilitate joint planning by faculty, spaces are provided to develop interdisciplinary lesson plans. This attention to staff needs promotes morale, program efficiency, safety, and staff recruitment. ■

HIGH SCHOOLS
NEW CONSTRUCTION

Morton, Russo, and Maggio
2009 U.S. Route 130, Suite B
North Brunswick, NJ 08902
Jack Barker
(732) 297-4200

Design team

James E. Morton, AIA
Principal

Richard W. Munch
Project Manager

Robert Ryan
Documentation Manager

Raval Engineering
Structural Engineers

Brownworth Engineering
Mechanical/Electrical Engineers

Client

South Brunswick Board of Education
(732) 297-7800

Grade span
9-12

Current building capacity
2,000

Current building area
363,000 square feet

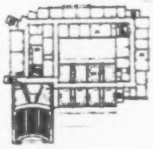
Total project costs
$42.4 million

Cost per square foot
$120

Space per student
178 square feet

Cost per student
$21,000

Completion date
September 1997



SITE PLAN

South Brunswick High School
Monmouth Junction, New Jersey

Morton, Russo, and Maggio

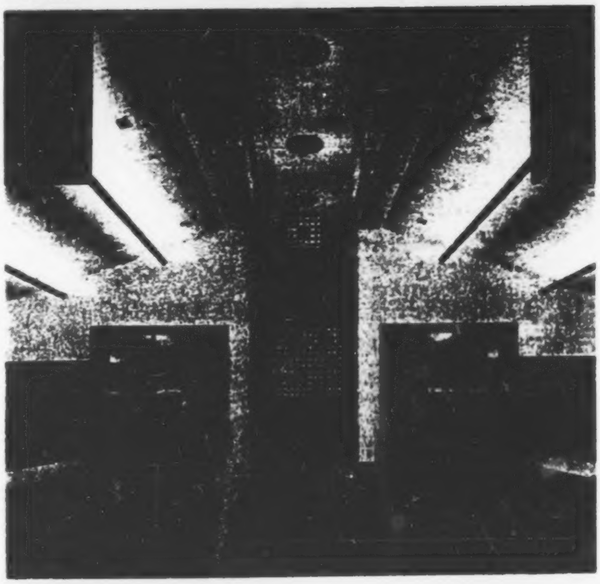
With a student capacity of 2,000 (expandable to 2,800), this new high school is the second largest in New Jersey. The plan is based on a schoolhouse concept, dividing the student body into three groups. Ninth- and tenth-grade students are in two "houses" on the third floor, with eleventh and twelfth grades on the second floor. Elective classes are located on the first floor. The front elevation also incorporates elements that resemble the one-room schoolhouse previously occupying the site.

Eighty classrooms include art studios, business labs, science labs, home economics, and small-group learning rooms. The 11,000-square-foot media center is centrally located to the classrooms. The 1,000-seat theater and auditorium can be subdivided into lecture rooms for 125 students each, allowing for a larger theater, while providing for large-group instructional areas required by the education program. Instrumental and vocal music classes each have separate rehearsal halls. The main gymnasium accommodates three basketball courts. An auxiliary gym accommodates the expanded physical education program.

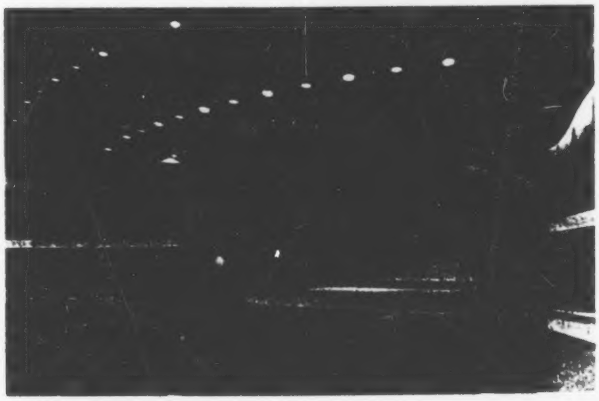
The new school is fully integrated with technology communication systems and satellite interconnects. The three technology labs teach practical use of computers for science, math, art, music, and mass media applications. ■

©JAMES SHIVE

EXTERIOR



MEDIA CENTER



AUDITORIUM

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Barger + Dean Architects, Inc.

227 Central Ave.
Sarasota, FL 34236
Web site:
www.architects@bargerdean.com

Kenneth G. Dean
(941) 365-6056

Design team

Kenneth G. Dean
Vice President

Darrell G. McLain
Principal

Client

School Board of Manatee County
(941) 741-7200

Grade span
9-12

Current building capacity
1,950

Current building area
215,230 square feet

Building area before
addition/renovation
170,349 square feet

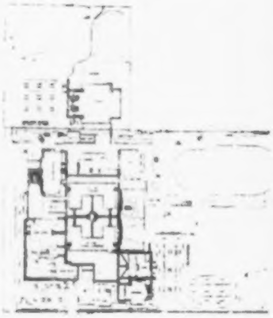
Total project costs
$24.8 million

Cost per square foot
$115

Space per student
110 square feet

Cost per student
$12,718

Completion date
August 1998



SITE PLAN

Southeast High School
Bradenton, Florida

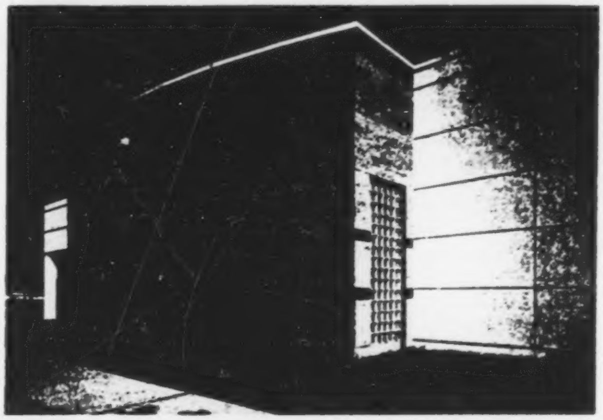
Barger + Dean Architects, Inc.

Southeast High School is a planned master development project with major additions and remodeling of an existing campus. The project replaces out-of-date facilities with new buildings, technology systems, and campus-wide utility systems.

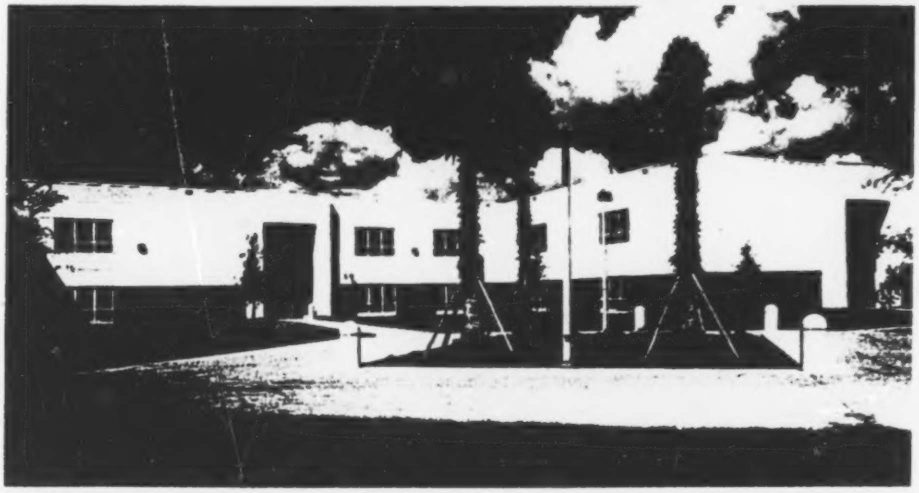
Major design objectives were to develop a campus that controls student and staff circulation within and around buildings, enhances security, and creates exciting learning centers for students. Prototype designed facilities were used to minimize cost, but the flexibility was maintained for future modifications.

All new core facilities (cafeteria, media center, gymnasium, and classroom/technology buildings) are based on a student population of 1,950. These facilities are located on 42 acres, which includes 27 acres of existing school facilities, five acres for vocational/agriculture fields, and 10 acres recently acquired for facility expansion. ■

GYMNASIUM



EXTERIOR



EXTERIOR

649

HIGH SCHOOLS
RENOVATIONS/ADDITIONS

SSOE Studios

1001 Madison Ave.
Toledo, OH 43624
Web site: www.ssoe.com

Joe Kunkle, AIA, PE
(419) 255-3838

Design team

Joe Kunkle, AIA, PE
Project Manager

Kirk Keaffaber, RA
Project Architect

Steve Shrake, AIA
Architect

Stephanie Glinka
Interior Designer

Mike Thompson
Mechanical

Steve Wheeler
Electrical

Neal Bigelow
Plumbing

Client

St. John's Jesuit High School
(419) 865-5743

Grade span
9-12

Current building capacity
800

Current building area
121,000 square feet

Building area before addition/renovation
105,000 square feet

Total project costs
$2 million

Cost per square foot
$125

Space per student
151 square feet

Cost per student
$2,500

Completion date
January 1998

St. John's Jesuit High School Toledo, Ohio

SSOE Studios

The technology center is the first addition to this all-boys high school since its construction in 1965. Over the years, educational processes had evolved and the existing infrastructure could not support the new technologies of a modern educational environment.

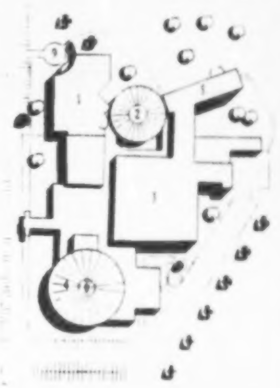
A thorough planning process led to a decision to consolidate many of the specialized spaces in a new technology focused expansion in order to best serve specific needs. Spaces in the new wing include music technology, the school's internal closed-circuit TV station (TV 4), electronic publishing, computer lab and instruction, and a media center that emphasizes electronic media in lieu of a traditional library arrangement.

These elements are brought together and create a new "front door" identity for the school. Titan Plaza is a round entry that provides a visitor with a subtle foreshadowing of circular spaces in the original school. Once inside, a fiber-optic light sweeps past each space and provides a symbolic unifying element.

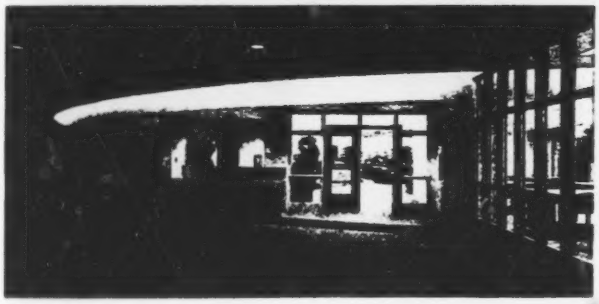
Material selection was made to complement the existing building but still showcase the expansion. Overall, the new technology center serves to fulfill the future educational goals of the school. ■

© Chris Burkhalter

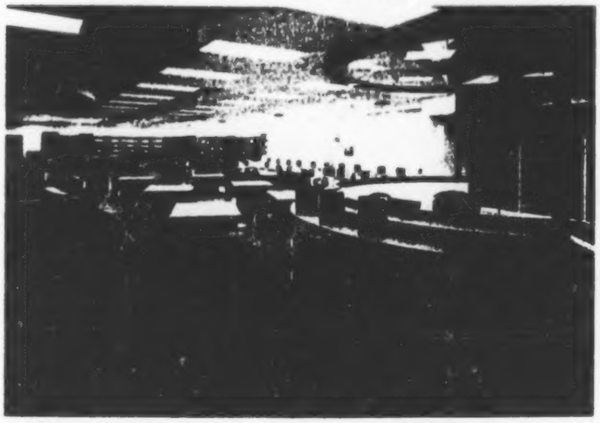
ENTRANCE



SITE PLAN



CORRIDOR



INTERIOR

1999 CITATION AWARD WINNER

HIGH SCHOOLS
NEW CONSTRUCTION

Valentiner Crane Brunjes Onyon Architects
524 South 600 East
Salt Lake City, UT 84102
Web site: www.valentiner.com
Steve Crane, AIA
(801) 575-8800

Design team

Steve Crane, AIA
Principal-in-Charge

Brent Tippets, AIA
Project Manager

Jeanne Jackson, AIA
Project Architect

Dan Nelson
Project Coordinator

Client

Lincoln County School District #2
(307) 886-3811
Dr. Brian Pead
Superintendent

Grade span
9-12

Current building capacity
1,200

Current building area
220,000 square feet

Total project costs
$23 million

Cost per square foot
$105

Space per student
183 square feet

Cost per student
$19,166

Completion date
September 1998

Star Valley High School
Afton, Wyoming

Valentiner Crane Brunjes Onyon Architects

Star Valley High School is the first new high school in this district in more than 60 years and the community center for the entire county. The new facility is designed for 800 students (growth planned to accommodate 1,200 students) with the latest state-of-the-art technological advances. It is also used year-round for numerous adult education classes and is the primary community center for a variety of uses and activities.

Valentiner Crane Architects completed education specifications/facility programs prior to commencing the design. The design solution responded to the unusual scheduling needs of the facility and resolved many of the owner's curriculum problems.

The school was designed to fit the site, scale, and colors of the rural area. The roofing and shape of the building reflect surrounding architecture.

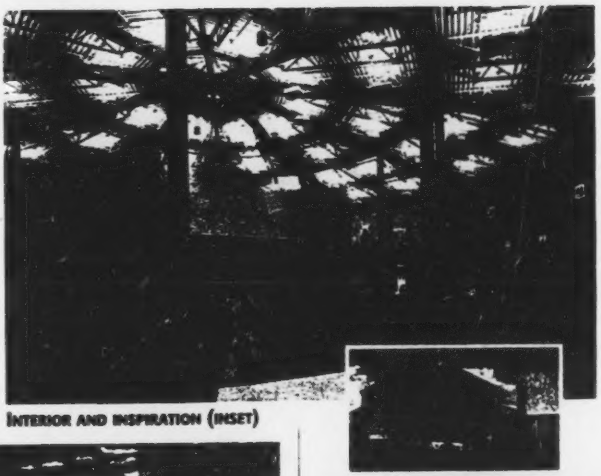
The facility design is a "house within a house" concept. Each department is interactive within itself and is easily accessible to other departments for interactive programs. The physical layout of the building is based on four distinct areas. The entire school, with the exception of the running track around the gym, is on one level. The media center is located in the center of the academic classroom areas to provide exceptional functionality.

The commons area is situated to provide access to the main office, counseling center, cafeteria, auditorium, gymnasium area, student store, and music rooms.

The pride of the new school, and all of Star Valley, will be the new performing arts center. It includes a 1,000-seat auditorium, a full-fly loft, an orchestra pit, a portable thrust stage (that covers the pit), scene shops, storage facilities, dressing rooms, and staging areas for performances.

Adjacent to the performing arts areas are the music facilities. The music department includes a choral room and an instrumental room that are separated by several practice rooms, an ensemble room, a midi-keyboard room, choral and instrumental libraries, and general offices. The choral and instrument classrooms are connected to the stage sound system and can double as large dressing rooms for productions that involve large casts.

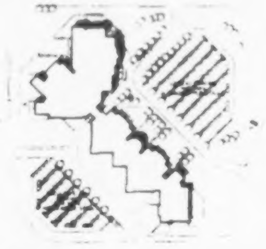
This visual arts wing is adjacent to the technology and vocational arts spaces and includes painting and drawing, architecture/CADD and 3-D drawing, print making, and sculpture studios. ■

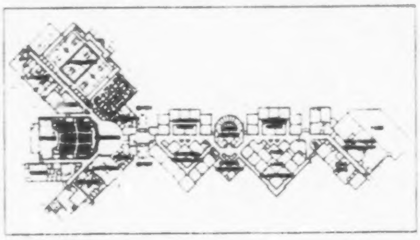

INTERIOR AND INSPIRATION (INSET)

©SCOT ZIMMERMAN PHOTOGRAPHY

EXTERIOR

CAFETERIA


SITE PLAN


FLOOR PLAN

651

HIGH SCHOOLS
NEW CONSTRUCTION

Armstrong, Torseth, Skold & Rydeen, Inc.
8501 Golden Valley Road, Suite 300
Minneapolis, MN 55427
Web site: www.atsr.com
Paul W. Erickson, AIA
(612) 545-3731

Design team

Kenneth E. Grabow, AIA
Project Manager

Dean Beeninga, AIA
Project Architect

Terry Stofferahn, PE
Mechanical Engineering

Gaylen Melby, PE
Electrical Engineering

Robert Gunderson, ASLA
Landscape Architecture

Diane Taylor, CID, IIDA Associate
Interior Designer

Tammy Magney, AIA, REFP
Educational Planning

Client

Wayzata Schools ISD No. 284
(612) 745-5000

Grade span
10-12

Current building capacity
3,000

Current building area
480,000 square feet

Total project costs
$42 million

Cost per square foot
$88

Space per student
160 square feet

Cost per student
$14,000

Completion date
Fall 1997

Wayzata High School
Plymouth, Minnesota

CITATION AWARD WINNER

Armstrong, Torseth, Skold & Rydeen, Inc.

Wayzata High School is dedicated to preparing a community of learners to live compassionately, to challenge the unknown, to know the past, and to create the future.

The real-life application of themes developed by the steering committee becomes evident when breaking down the large school to a smaller, human scale, while encouraging the best practices for lifelong learning. Spatial relationships enhance learning environments and create opportunities for students, staff and community.

Creating smaller communities of students is necessary to impart a sense of belonging and security in such a large school building. Eight 400-student houses exist, each with flexible classroom and lab clusters to deliver departmental, interdisciplinary, and theme instruction. Students are able to set goals and challenge themselves as they implement their personal plan for progress.

The following guidelines determine each multidisciplinary cluster: 400 students, 10 classrooms, four labs, two conference areas, one open breakout space, and locker commons for 400 students.

Educational programs for students of the 21st century require adaptability. The clusters offer a sense of community and belonging to students, while maintaining the flexibility of multiple uses, variety within the classroom arrangement, and zoning for after-hours use.

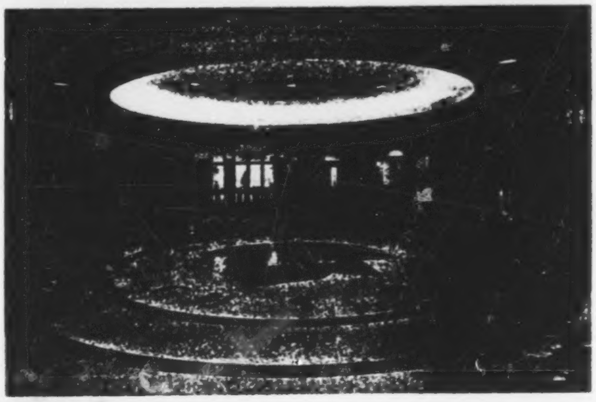
The building can easily be zoned for multiple community uses in the evening and weekends to ensure building security and maximize facility use.

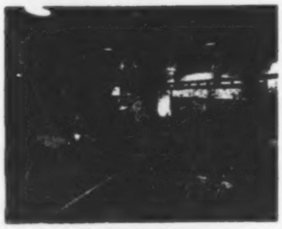
The school district has created a building- and district-wide technology plan, employed an on-staff technology specialist, and established rules and guidelines to ensure smooth operations. The fabric of the technology plan is strengthened by threads leading to the teaching stations, media center, and administration. The media center provides LAN/WAN, distance learning, and information kiosks. Administration is fully linked to voice, video, data, and security.

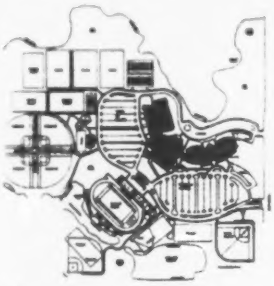
The site design reflects a collaborative effort with the city, community, and school to provide accessible fields, parking, and facility use year-round. The building shape and form capitalize on the sloped site and wooded ravine within the multi-story design. ■

©Ralph Berlowitz

EXTERIOR


ENTRY FOYER


GROUP FORUM ROOM


SITE PLAN

652

HIGH SCHOOLS
NEW CONSTRUCTION

GMB Architects-Engineers

145 College Ave., P.O. Box 2159
Holland, MI 49422-2159
Web site: www.gmb.com

Christina Kleis
(616) 392-7034

Design team

Tom Van De Griend, AIA
Project Architect

Ron Snoeyink
Mechanical Engineer

John Eberly, PE
Electrical Engineer

Amy Hersey
Interior Designer

Tim Gerrits
Site/Landscape Designer

Client

Zeeland Public Schools
(616) 748-3002

Grade span
10-12

Current building capacity
1,000

Current building area
200,000 square feet

Total project costs
$17 million

Cost per square foot
$85

Space per student
200 square feet

Cost per student
$17,000

Completion date
September 1997

Zeeland High School
Zeeland, Michigan

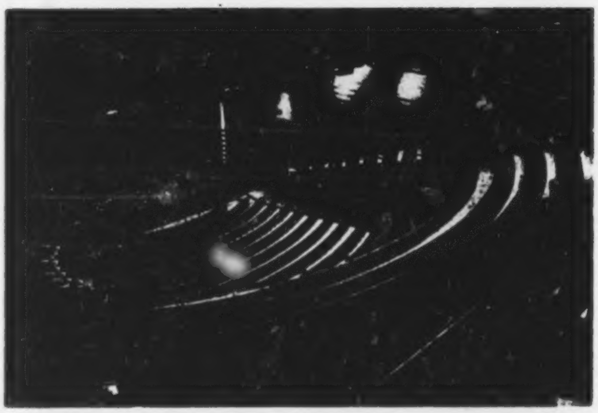
GMB Architects-Engineers

Located in a small, tight-knit community, this new high school was to be obedient to tradition, respectful of Dutch heritage and religious activity, and fiscally responsible—the characteristics of Zeeland, Mich., itself.

Zeeland's pride in community is mimicked throughout the facility's organization. To reflect a traditional sense of knowledge, three major units—athletics, academics, and arts—make up this building. These units use simplistic geometric forms with a brick pattern in an interpretation of the Dutch sense of order. To further exemplify Zeeland's traditional foundation yet emphasize the community's 21st century technology bent, the three major building units have been both severed and joined via a "non-traditional" high-tech, grid-like form of composite aluminum panels.

The entries are all called out as extensions of each area's geometric form. The entry details, similar to all details in the project, were kept to pure forms to reflect the community's desire to be unpretentious. A tight budget required that visual excitement be created with playful geometry and massing in lieu of ornate detailing.

Within the academic units, four "houses" promote the concept of independent "family" identities (250 students per house). The layout of the academic areas is flexible to accommodate today's departmental teaching and the future's interdisciplinary approach. A gymnasium that seats 3,000 fans and an auditorium that houses 1,000 guests round out this community-oriented facility. ■



AUDITORIUM

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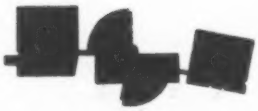
CAFETERIA



SITE PLAN

EXTERIOR

K-12 SCHOOLS
NEW CONSTRUCTION

Design Alaska, Inc.

601 College Road
Fairbanks, AK 99701
Web site: www.designalaska.com

Bill Payton
(907) 452-1241

Design team

William Payton, AIA
Project Manager

Chuck Morgan
Jack Wilbur
Mechanical Engineers

Bob Gras
Electrical Engineer

Paul Perreault
Structural Engineer

Pier Stragier
Civil Engineer

Client

Lower Kuskokwim School District
(907) 543-4888

Grade span
K-12

Current building capacity
100

Current building area
18,200 square feet

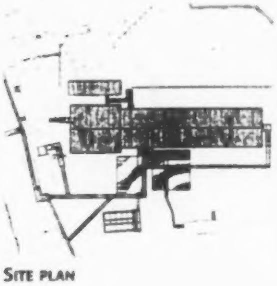
Total project costs
$6.41 million

Cost per square foot
$350

Space per student
181 square feet

Cost per student
$63,350

Completion date
1995



SITE PLAN

Akiuk Memorial School
Kasigluk, Alaska

Design Alaska, Inc.

This kindergarten through twelfth grade educational facility replaces the existing school and out-buildings constructed by the Bureau of Indian Affairs in 1964.

Being a remote village in southwestern Alaska, the site is subject to severe coastal erosion and subsidence caused by permafrost degradation. To prevent total loss of the facility from subsidence, a transportable facility was designed. The design incorporated a series of wood-frame modules (24-feet by 62-feet wide) on passively refrigerated steel piling.

This unique design allows for easy disassembly and transport. At each module line the electrical and mechanical systems would be unplugged, the structural system unbolted, the metal roofing "unzipped," and the module placed on a trailer ready for relocation. The floor structure on the underside of the school is designed to accommodate a professional mover's trailer, and module-by-module the school could be relocated to a new site of the village's choosing. Any move would be done during winter when roads are constructed on the frozen rivers to provide access to the villages located along interior Alaska's rivers.

CORRIDOR

CLASSROOM

The spaces are needed for a projected enrollment of 97 students. Elementary space requirements include classrooms for kindergarten, grades 1/2, 3/4, 5/6, and 7/8. High school space requirements include classrooms for science/math, social studies/home economics, and language arts. Required joint use spaces include a bilingual classroom, a library/media center, a special education/tutor area, a gymnasium for sports and recreation and for village social activities like native dances, a computer center satellite receiver, and distribution space for the STAR satellite education program. The vocational program has separate facilities for welding, carpentry, small-engine repair, and photography. ■

EXTERIOR

K-12 SCHOOLS
NEW CONSTRUCTION

Cuningham Group
201 Main Street SE, Suite 325
Minneapolis, MN 55414
John Pfluger
(612) 379-3400

Design team

John Cuningham
Principal-in-Charge

John Pfluger
Project Manager

Darryl Pratte
Project Architect

Jeffrey Mandyck
Project Designer

Janet Peters
Interior Design

Grant Reiling
Project Team

Mohammed Lawal
Project Team

Kathy Wallace
Programming

Lynette Pollari
Programming/Environmental

Peter Legeros
Project Team

Client

West Metro Educational Program
(612) 627 2085

Grade span
K-12

Current building capacity
600

Current building area
102,500 square feet

Total construction costs
$11.5 million

Cost per square foot
$112

Space per student
165 square feet

Cost per student
$19,166

Completion date
June 1999

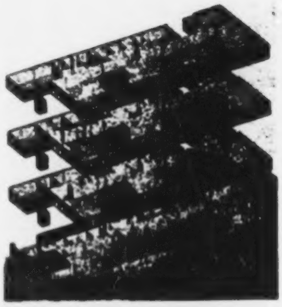
West Metro Education Program Downtown K-12 School Minneapolis, Minnesota

Cuningham Group

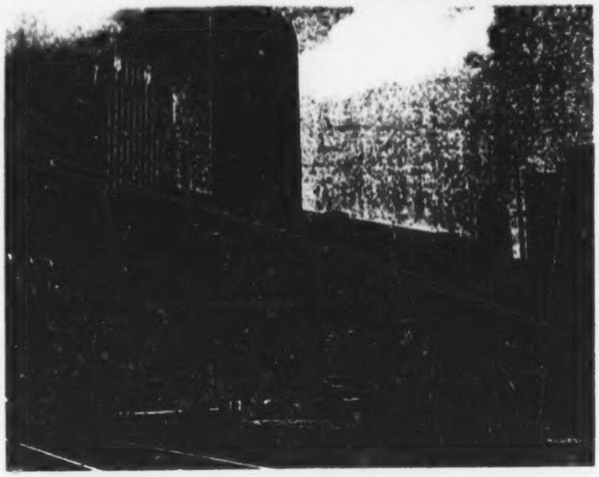
The Downtown School project is a multicultural learning center for grades K-12, serving the nine school districts that constitute the West Metro Educational Program. The school's design program is for 600 students in grades K-12, with school-age childcare services on site. The Downtown School is being designed as an integrated/extended community design model that will utilize the diverse downtown environment of Minneapolis as its primary context.

The design program reflects this by providing focused instructional "houses" for student groups and shared whole-school space within the school, which will be augmented by off-site learning settings. The facility and its programs are being designed to make full use of the downtown Minneapolis context, supporting hands-on experiential learning. Advanced technologies and the support and enhancement of multicultural learning, exchanges, and community building are important design aspects.

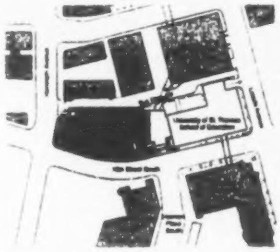
The school will be housed in a newly constructed 102,500-square-foot, four-story building on the corner of 10th Street and Hennepin Avenue, adjacent to a proposed academic building for the University of St. Thomas's School of Education. Both structures will be located on top of a three-story, below-grade, municipal parking ramp to be owned and operated by the City of Minneapolis. The year-round facility will initially open in the summer of 1999 and is funded by a grant from the state of Minnesota. ■



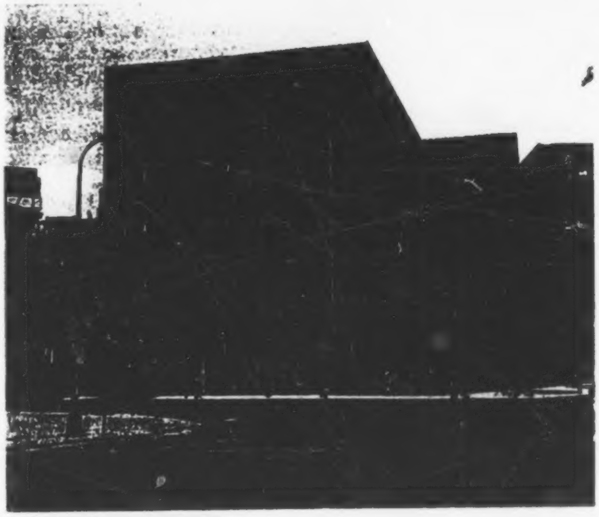
SCHOOL ORGANIZATION



URBAN CONTEXT



SITE PLAN



HENNEPIN AVENUE STAIRS

MIDDLE/HIGH SCHOOLS
NEW CONSTRUCTION

Earl R. Flansburgh + Associates, Inc.

77 North Washington Street
Boston, MA 02114
www.erfa.com

Kate M. Brannelly
Principal/Marketing Director
(617) 367-3970

Design team

Earl R. Flansburgh, FAIA
Principal-in-Charge

Duncan P. McClelland, AIA
Project Manager

Christopher A. Sgarzi, AIA
Project Architect

Vincent E.J. Dube, AIA
Technical Architect

William E. Warren, AIA
Detail Designer

Luciane M. Maia
Architectural Draftsperson

Valerie M. Curtis
Project Interior Designer

Thomas F. O'Neill, AIA
Construction Administrator

Client

Mendon-Upton Regional
School District
(508) 529-7729

Grade span
6-12

Current building capacity
1,000

Current building area
147,000 square feet

Total project costs
$19.24 million

Cost per square foot
$115

Space per student
147 square feet

Cost per student
$19,240

Completion date
December 1997

Nipmuc Regional Middle/High School
Upton, Massachusetts

Earl R. Flansburgh + Associates, Inc.

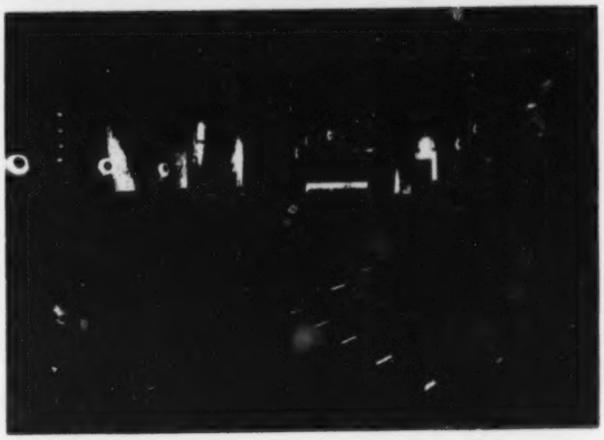
This new 147,000-square-foot regional middle/high school, serving 1,000 students in grades 6 through 12, provides a state-of-the-art educational facility and a community resource for two rural towns. Located on a densely wooded 50-acre site, the school recalls the 19th century industrial mills and farming history of the region.

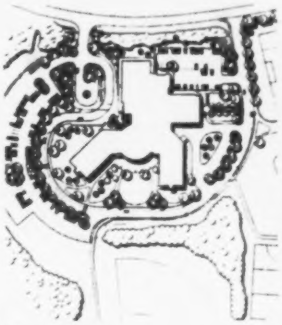
The design concept is two three-story academic wings, one for the middle school and one for the high school, flanking a centralized rotunda that houses the media center, cafeteria, and a professional development center designed to promote interdisciplinary coordination and research among the teaching staff. Each school has a separate entry off the main entrance lobby and includes 25 classrooms with science labs, art, and music rooms. Shared core space includes a 500-seat divisible auditorium, a band/choral practice room, and a gymnasium known as "the barn" with spectator seating for 825.

Building materials include split-faced concrete block and brick, copper-sided cupolas, and wooden fencing. Site development provides circulation for separate bus, student, faculty, and visitor drop-off and pickup areas and parking. New athletic fields for field hockey, baseball, and softball, as well as a soccer field with lighting and irrigation, support school and community athletic programs. ■

© Steve Rosenthal

EXTERIOR


AUDITORIUM


SITE PLAN

EXTERIOR

MIDDLE/HIGH SCHOOLS
NEW CONSTRUCTION

Tappé Associates, Inc.
Six Edgerly Place
Boston, MA 02116
Lynn Ellen Smith
(617) 451-0200

Design team

A. Anthony Tappé, FAIA
Principal-in-Charge

Jeffrey R. Davis, AIA
Associate-in-Charge/Project Manager

Callie Troutman
Design Team Member

Eric Johnson
Design Team Member

Douglas Fisher
Construction Administrator

Client

Quabbin Regional School District
(978) 355-4668

Grade span
7-12

Current building capacity
1,400

Current building area
247,500 square feet

Building area before addition/renovation
112,000 square feet

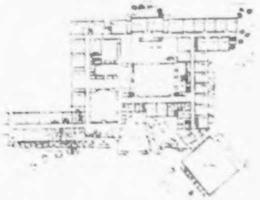
Total project costs
$25 million

Cost per square foot
$101

Space per student
177 square feet

Cost per student
$17,857

Completion date
August 1997



SITE PLAN

Quabbin Regional Middle/High School Barre, Massachusetts

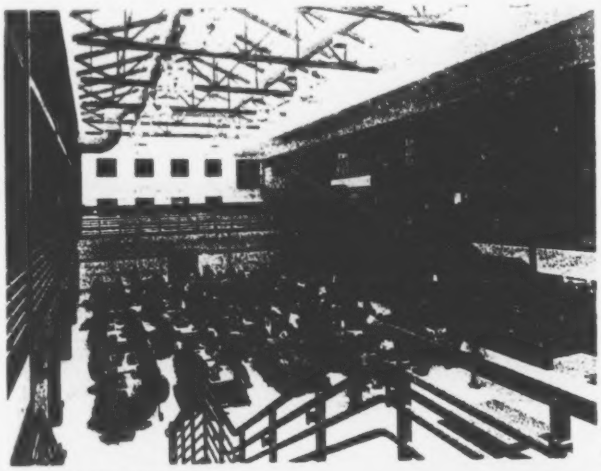
Tappé Associates, Inc.

The five member towns of the Quabbin Regional School District had a pressing need: to solve the daunting problem of educating their 1,200 7-12 graders in a facility designed for 750 students. The short-term solution was to hold double sessions, keeping the school open for more than 12 hours a day.

Tappé Associates, Inc., worked closely with the building committee to design a cost-effective solution that creatively renovated the existing 112,500 square feet and added 135,000 square feet to create the educationally preferred separation between the middle school and high school students. The final design created two academic houses connected by a three-story, skylit cafeteria commons.

Each academic house has its own main entrance, general classrooms, science laboratories, special needs areas, computer laboratories, and administrative/health facilities, while sharing the performing arts, technical areas, library, cafeteria, and athletic core facilities. In addition, the facility is now the technological hub of the 135-square-mile rural regional school district. The elementary schools can access the World Wide Web via the middle/high school Internet server.

After five years of operating with double sessions and construction activities, September 1998 marked the first school year that the Quabbin community could take full advantage of the enriched academic environment, enhanced athletic facilities, and modern technological infrastructure and equipment. ■



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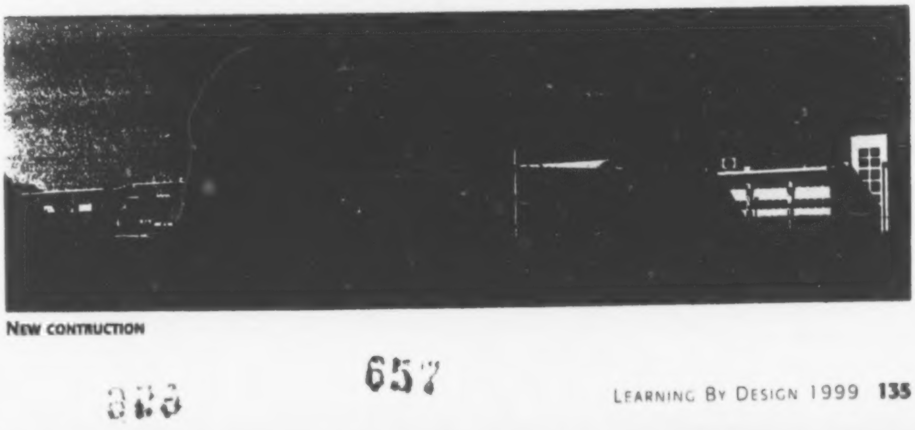
CAFETERIA COMMONS

EXTERIOR



NEW CONTRUCTION

MIDDLE/HIGH SCHOOLS
RENOVATIONS/ADDITIONS

Ashley McGraw Architects, PC

500 South Salina Street
Syracuse, NY 13202

Sandra March
(315) 425-1811

Design team

George Green, AIA
Project Architect

Karin Kilgore-Green, RA
Project Architect

Edward McGraw, AIA
Partner-in-Charge

Matthew Broderick, RA
Young-Sun Lee
Jeannine Taylor-Stack
Gretchen Stoecker
Project Team

Client

Florida Union Free School District
(914) 651-3095

Grade span
6-12

Current building capacity
429

Current building area
87,148 square feet

Building area before addition/renovation
38,274 square feet

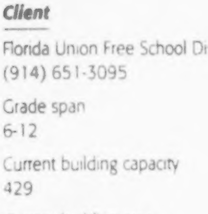
Total project costs
$8.2 million

Cost per square foot
$81

Space per student
203 square feet

Cost per student
$16,363

Completion date
September 1997



SITE PLAN

S.S. Seward Institute
Florida, New York

Ashley McGraw Architects, PC

Increased population, an inadequate facility, and the need for a distinct middle school provided the impetus for the Florida Union Free School District to renovate and build a 50,000-square-foot addition to the 38,000-square-foot existing building.

The constricted site and aging two-story split-level school provided challenges for such a large project. The available area for the building expansion, parking, and soccer field split the addition into two parts that bracket the old school on the front and back. The front addition provides a formal facade to the main street entrance and Seward Memorial. An octagonal tower element marks the main entrance.

The public functions of the cafeteria and auditorium, lecture and band room, and administration suite are organized around the spatially complex entry lobby, giving the school an internal focus and identity. The public functions continue through the main level with the existing gym converted into a new media center. The rear addition provides a new 700-seat gymnasium with its own entrance and lobby.

The second story of the front addition serves the new middle school classrooms, while the high school classrooms occupy the second floor of the existing building and rear addition. ■

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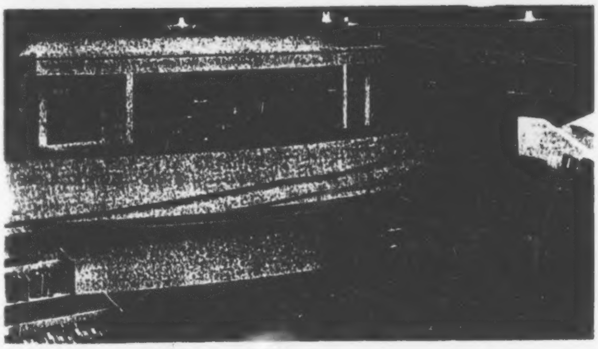
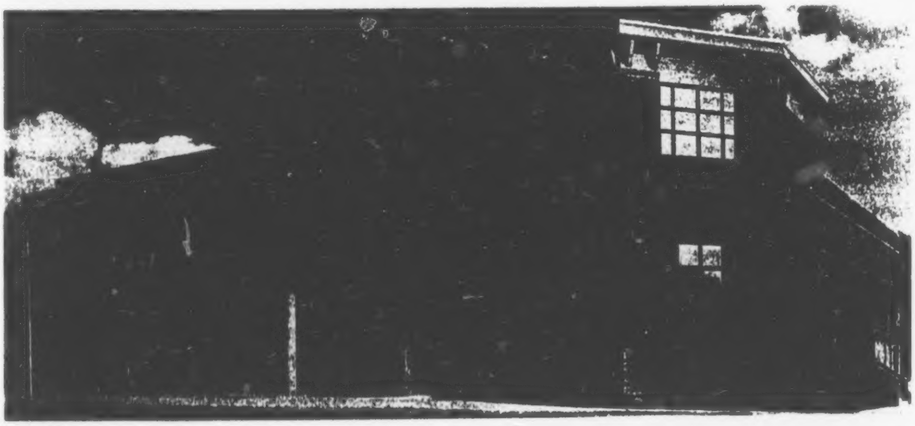
INTERIOR



EXTERIOR



EXTERIOR

OTHER PROJECTS
NEW CONSTRUCTION

Thomas Blurock Architects

720 W. 17th Street, Unit C
Costa Mesa, CA 92627

Thomas H. Blurock, AIA
(949) 646-9373

Design team

Thomas H. Blurock, AIA
Kevin S. Fleming
Jack Brandt
Vince Coffeen

Ove Arup & Partners, California
Engineering Consultants

Client

Rancho Santiago Community College
(714) 564-6300

Grade span
Community College

Current building capacity
625

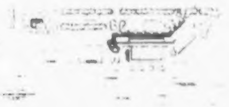
Current building area
67,800 square feet

Total project costs
$11.5 million

Cost per square foot
$170

Space per student
108 square feet

Completion date
1997



SITE PLAN

Cesar Chavez Business and Computer Technology Building Santa Ana, California

Thomas Blurock Architects

© 1998 Milroy & McAleer

CORRIDOR

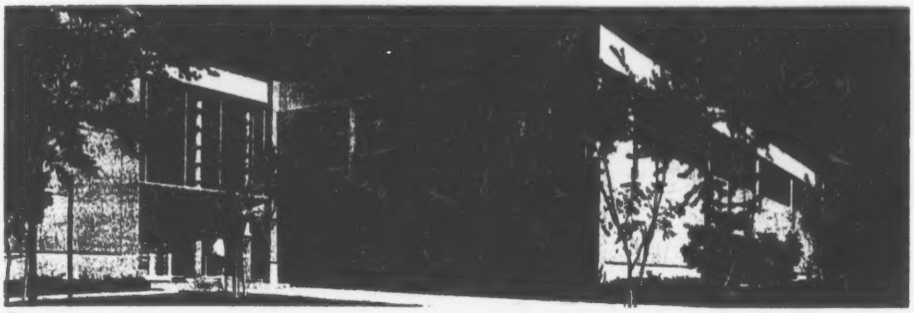
COMPUTER ROOM

This building represents the progressive thinking of the educators at Rancho Santiago Community College and the future technological focus of the curriculum. The building is set on a high-profile corner site of the campus that completes the central quad of the college and fronts two major Santa Ana Streets. The visual prominence and complex program of this project posed both internal and external architectural challenges.

The main criteria was to create a building that was adaptable to the unpredictable technological changes of the future and to centrally house the various departments that have heavy technology needs. The solution began with the structure. To optimize flexibility, one building is constructed of large free-span steel moment frames that allow for easy technological upgrades and program changes in the future. Within this skeletal framework, non-load bearing walls, curtain walls, and cladding are balanced or suspended to interrupt and divide the space. In addition, an access floor is provided for easy access to the building's infrastructure and to accommodate future needs.

The building is a boundary and a transition from the public to the academic. To illustrate this dichotomy the building reflects the existing campus grid, where the building faces the quad and then makes a 45-degree rotation at the corner that is nearest the intersection. This twist in plan opens up a diagonal access from the public corner, loosens up the site plan, and allows for a diagrammatic break for the administration portion of the program. The knuckle of the twist is the entry to the building.

Visually, the building also reflects its different faces. Curtain walls of glass face the quad, providing a visual interaction between the circulation of the building and the rest of the campus. The street face is visually closed except for exterior walkways and clerestories of light. Reflecting the technological program that it houses, the building reveals its structure in a rhythmic cadence of concrete and steel columns, the colors reflecting those of the existing campus. ■



EXTERIOR

OTHER PROJECTS
New Construction

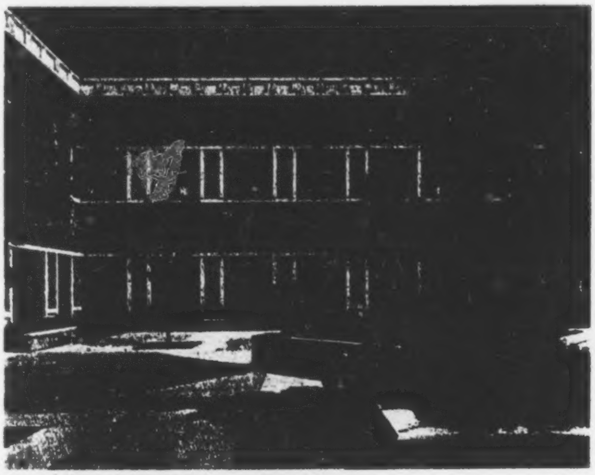
Chicago Public Schools
Chicago, Illinois

DeStefano and Partners, Managing Architect

In a program to deliver affordable, quality schools to diverse city neighborhoods in the shortest possible time, the Public Building Commission of Chicago first selected DeStefano and Partners in 1993 to develop a prototype elementary school for the 21st century. The two prototypes that emerged are key components in the Chicago Public Schools' current $2 billion dollar Capital Improvement Program, which will deliver more than 100 new school buildings and additions through the year 2003.

Designed to fit a typical city block, the "courtyard" and "linear" schemes each employ modular components grouped by functional relationship. Classrooms are designed to a 10-foot module and grouped for flexibility. Gym, dining, and support facilities are similarly grouped. The courtyard plan provides natural light to corridors and a secured play area for primary grades. The linear plan is easily adapted to the half-block sites chosen for most new schools and is the basis for major additions.

The multipurpose room, art classrooms, and faculty center are located on the first floor near the administrative office


©Karant + Associates, Inc

Carson Elementary School, courtyard
Architect-of-Record: Mann, Gin, Ebel & Frazier, Ltd.

©Hedrich Blessing Photography

McKay Elementary School, exterior
Architect-of-Record: Lohan Associates, Inc.

De Stefano and Partners, Managing Architect

445 E. Illinois Street
Chicago, IL 60611

James R. DeStefano, FAIA, RIBA
(312) 836-4321

Design team

DeStefano and Partners
Managing Architect

Mann, Gin, Ebel & Frazier, Ltd.
Associate Architect

Maureen Reagan Architects
Associate Architect

Rubinos & Mesia Engineers, Inc.
Structural Engineers

Primera Engineers, Ltd.
Mechanical Engineers

Brook Architecture
Mentor-Protégé Program

Architech Consulting, Inc.
Specifications

Thomason Clark, CRM
Cost Estimating

Prime Construction
Scheduling

Cushing & Company
Printing and Reproduction

Environmental Design International
Surveying and Geotechnical

Client

Chicago Public Schools
(773) 535-4715

New construction design capacity
Schools completed (6):
5,660 students
Schools under construction (3):
3,320 students
Additions completed (12):
8,275 students
Additions under construction (8):
4,505 students

New construction building area
Schools completed (6):
510,000 square feet
Schools under construction (3):
265,000 square feet
Additions completed (12):
774,600 square feet
Additions under construction (8):
477,955 square feet

New construction building costs
Schools completed (6):
$66.26 million
Schools under construction (3):
$37.77 million
Additions completed (12):
$113.87 million
Additions under construction (8):
$76.98 million

New construction cost per square foot
Schools completed (6): $130
Schools under construction (3): $142
Additions completed (12): $147
Additions under construction (8): $161

New construction space per student
Schools completed (6):
90 square feet
Schools under construction (3):
80 square feet
Additions completed (12):
93 square feet
Additions under construction (8):
106 square feet

Cost per student
Schools completed (6): $11,706
Schools under construction (3):
$11,375
Additions completed (12): $13,760
Additions under construction (8):
$17,087

Completion date
9 new schools and 20 additions completed or under construction as of October 1998

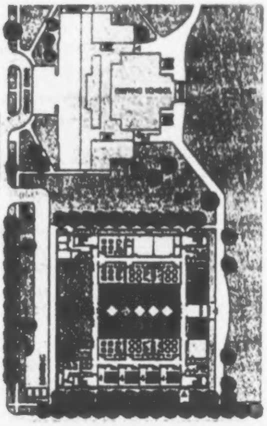
660

©Karant + Associates, Inc.

Sawyer Elementary School, exterior
Architect-of-Record: Loebl, Schlossman & Hackl, Inc.

©Karant + Associates, Inc.

Nightingale Elementary School, entrance
Architect-of-Record:
Daniel P. Coffey & Associates



Site plan, courtyard prototype

©Hedrich Blessing Photography

Finkl elementary School, classroom
Architect-of-Record: DeStefano and Partners

©Karant + Associates, Inc.

Sawyer Elementary School, exterior
Architect-of-Record: Loebl, Schlossman & Hackl, Inc.

and entrance for secured after-school access. Each new school is cabled for security, intercom, television, local and wide-area network, and Internet access and includes a state-of-the-art computer lab and a library. First-class mechanical systems with central heating and air-conditioning permit year-round use.

For economy, the architectural design excludes nonfunctional elements. In scale, materials, and texture, the elevations are consistent with their urban surroundings, and additions blend with and complement elements of the existing buildings. To endure the tests of time, the new buildings are steel framed with brick and block cavity exterior walls and stone banding for color and texture. Aluminum double-hung commercial quality windows use clear, low-E glass. An elegant, simple steel entry canopy for new schools provides shelter and adds visual interest and civic importance to the crisp lines of the buildings' facades. Terrazzo floors and burnished block walls are used in public circulation areas, including corridors, stairs, toilet rooms, and entries.

New schools and additions in the program are designed and built on an accelerated schedule facilitated by the economical, fast-track managing architect project-delivery system. To implement the simultaneous construction of multiple prototypical new schools and additions, DeStefano and Partners prepares 50-percent-complete construction documents for transfer to each pre-qualified architect-of-record. Architects-of-record then complete contract documents and specifications with an established framework of design, schedule, and budgetary parameters. ■

OTHER PROJECTS
SPECIAL-PURPOSE FACILITIES

HMFH Architects, Inc.
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Philip Lewis, AIA
Project Manager

Bob Pahl, AIA
Project Manager

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Dorothea Hayes
Chloe Papanastasiou
Maria Noguera
Lori Cowles
Marty Ulman
Doug Goddard

Client

City of Boston, Department of Neighborhood Development
(617) 635-4814

Grade span
Pre-K–K

Current building capacity
300

Current building area
36,400 square feet

Total project costs
$7.13 million

Cost per square foot
$184

Space per student
121 square feet

Cost per student
$23,766

Completion date
July 1998

East Boston Early Education Center
Boston, Massachusetts

HMFH Architects, Inc.

As part of a citywide plan to improve student success, the City of Boston has developed an early education program. HMFH, one of three firms selected to adapt the city's prototypical early education center to different areas of Boston, designed a compact, three-story building in response to a constricted site in a neighborhood of three- and four-story brick rowhouses.

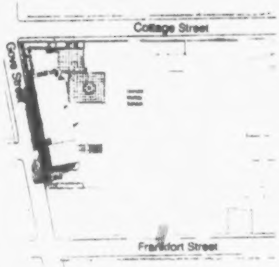
Intended to enrich and nurture the city's youngest learners and make their initial school experience positive, the school features playful, child-like colors, shapes, and patterns. This transition between home and the school environment minimizes large, overwhelming spaces by placing just two pairs of classrooms per floor, creating more intimate surroundings scaled to the young users. Wood classroom floors and solid wood windows, included at the client's request because of their proven durability and ease of maintenance, enhance the warm atmosphere created within the small school.

The 12-classroom building for 300 students in preschool and kindergarten shares a corner site with an existing elementary school. With available outdoor play space at a minimum, the new red brick building, like the existing school, is squarely positioned along the street, leaving the sunny corner open for a colorful, treelined outdoor play area that also serves as a neighborhood park. ■

EXTERIOR

GYMNASIUM

©PETER VANDERWARKER, INTERIOR; ANTON GRASSI, EXTERIOR



SITE PLAN

CLASSROOM

©PETER VANDERWARKER

OTHER PROJECTS
SPECIAL-PURPOSE FACILITIES

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Interior Design

W. David McAdams
Landscape Architect

O&S Enterprises, Inc.
Electrical Engineering

Entech Engineering, Inc.
Mechanical Engineering

Hodnett/Hurst Engineers, Inc.
Structural Engineering

Client

Russellville City Board of Education
(256) 332-8440

Grade span
7-12

Current building capacity
300

Current building area
19,137 square feet

Total project costs
$1.31 million

Cost per square foot
$69

Space per student
64 square feet

Cost per student
$4,387

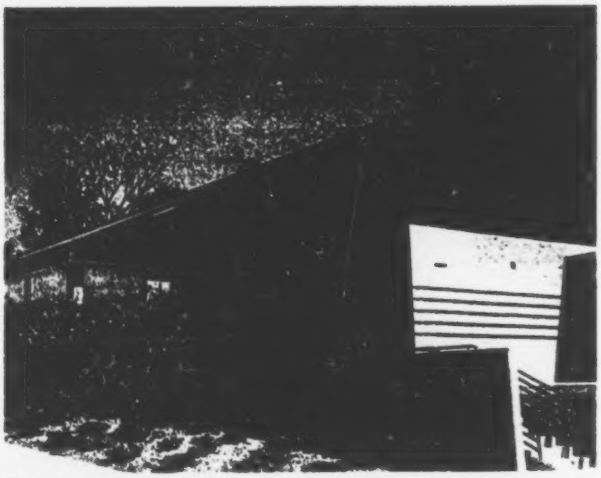
Completion date
April 1998

Fine Arts Center
Russellville, Alabama

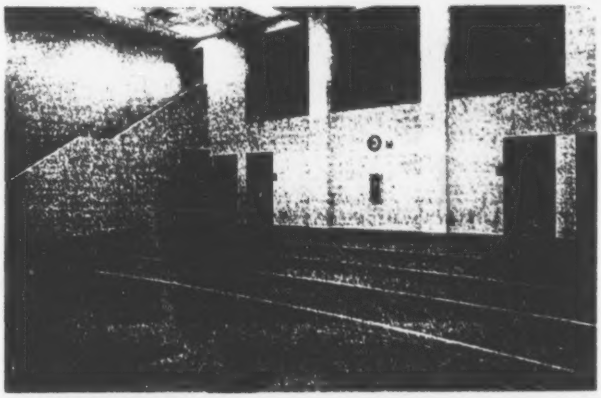
Fuqua Osborn Architects, PC, AIA

This facility was developed to meet the needs of an expanding, nationally known music department. The complex combines the choral and instrumental music programs for sixth through twelfth grades in a centralized location.

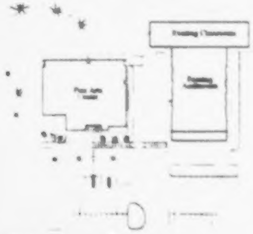
To allow individual and collective student instruction and practice, this building provides a variety of rehearsal spaces. The large instrument rehearsal area accommodates 180 students, with an additional ensemble area. The choral rehearsal area accommodates 100 students. Both vocal and instrumental areas have individual practice rooms. The 19,137-square-foot center was completed in April 1998 with construction costs of $1,315,960. ■



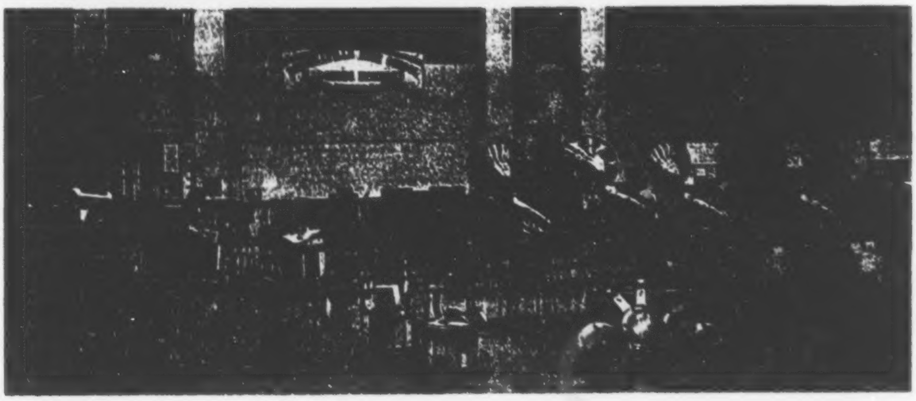
EXTERIOR



VOCAL REHEARSAL AREA



SITE PLAN



MUSIC AREA

OTHER PROJECTS
RENOVATIONS/ADDITIONS

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Janet Ladd
(914) 478-3677

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Francis X. Craine, AIA
Partner

Garth McIntosh
Architect

Tricia Goffe
Architect

Diane Collins
Interior Architect

Client

Barnard College
(212) 854-2021

Grade span
College

Current building capacity
248 (room capacity)

Current building area
2,800 square feet (room area)

Total project costs
$650,000

Cost per square foot
$232

Completion date
January 1997

SITE PLAN

Julius S. Held Hall, Barnard College New York, New York

Peter Gisolfi Associates

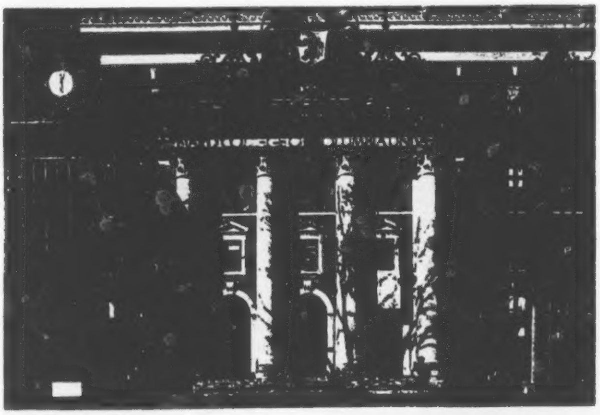
Architects • Landscape Architects • Interior Architects

This project is a reconstruction of the major lecture room at Barnard College. The original building was built in 1917; the room was initially a library. In 1958 it was converted into a lecture room with a sloping vinyl floor. The original windows, central to the east façade of the building, were covered during that renovation. The use of acoustical tiles lowered the ceiling, and unpleasant lighting was installed. All the original detail in the room was destroyed.

The new room was designed to accommodate lectures in history, art history, and the natural sciences; panel discussions; and musical recitals. It was also intended as a "smart classroom" that would unobtrusively incorporate the latest computer technology as well as video, overhead, CD-ROM, 35-mm slide, and 16-mm-film projection. All of the projection screens and audiovisual equipment are built into the ceiling and cabinetry in the room.

The finished space incorporates all of these features in a completely reconstructed room. The room includes a sloping wood floor; custom-designed seating; lighting provided by sconces, chandeliers, and recessed lights that are controlled from the podium; and acoustically designed shutters that completely darken the room and cover the newly replaced windows.

The space is now worthy of the original building and feels important enough to be the main lecture room on the Barnard campus. ■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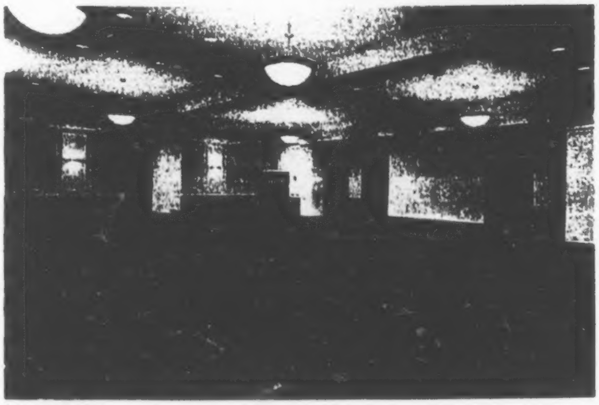
EXTERIOR

LECTURE HALL


LECTURE HALL

OTHER PROJECTS
NEW CONSTRUCTION

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Ed Kepner, AIA
Project Manager

David Harrier
Project Architect

Client

Richardson Independent School District
(972) 301-3400

Grade span
9

Current building capacity
900

Current building area
160,000 square feet

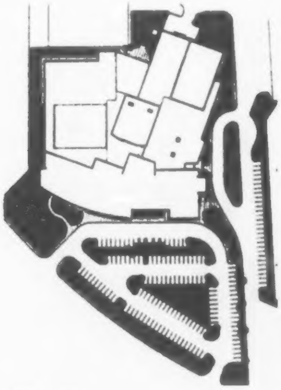
Total project costs
$17.65 million

Cost per square foot
$110

Space per student
200 square feet

Cost per student
$22,000

Completion date
August 1998



SITE PLAN

Lake Highlands Freshman Center Richardson, Texas

Hidell and Associates Architects

STUDENT COMMONS

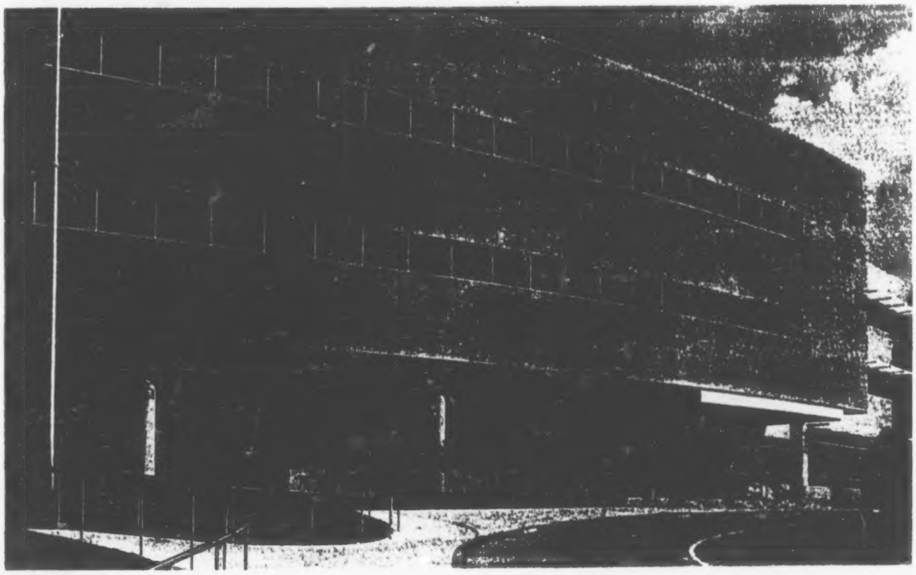
This 160,000-square-foot educational facility was designed to house 900 incoming high school freshmen. The building's vertical design was in response to extremely confined site conditions.

The curvilinear façade follows the line of the adjacent street and softens the visual impact of the three-story tower. The tower accommodates general classrooms, administrative offices, and a state-of-the-art media center. Fine arts and athletics are configured in two single-story building wings.

The tower and opposing building wings are visually and physically linked by a spacious student commons areas. Visitors entering the building via the commons can visually identify the administration area, media center, performance hall, gymnasium, and fine arts. The core curricula tower is uniquely designed to shorten travel time between classes. Corridors are reduced to 130 feet in length, while vertical access is within 70 feet of each classroom.

Overall, the building was designed to enhance the learning environment for every student at the school. ■

OFFICE



EXTERIOR

OTHER PROJECTS
NEW CONSTRUCTION

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Rob Nash, RA
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Michael Bomberowich
Project Coordinator

Harry Jenkins
Construction Administrator

Tony Carango
Bill Gaffney
Electrical Designers

Gary Jeffries
Mechanical Designer

John Peterson
Plumbing/Fire Protection Designer

Natan Lisitsa, PE
Structural Engineer

Christine Kepko
Interior Designer

Client

Philadelphia School District
(215) 875-3601

Grade span
Pre-K-1

Current building capacity
360

Current building area
6,800 square feet

Total project costs
$3.7 million (per 12-classroom prototype)

Cost per square foot
$157

Space per student
65 square feet

Cost per student
$10,277

Completion date
Ongoing

Little School Houses
Philadelphia, Pennsylvania

Vitetta Group

Under its architect/engineer of record contract, Vitetta Group was commissioned to design a prototype "Little School House." The prototype, as designed, provides the School District of Philadelphia with a modular and flexible design that can be adapted to various sites throughout the district for the implementation of full-day preschool programs and can be used for kindergarten and first-grade classes.

The prototype consists of a core element and classroom modules that can be constructed on either side of the core, depending upon actual site conditions. The two initial installations consist of a core and three classroom modules containing four classrooms each. In this 12-classroom configuration, the "Little School House" totals 24,000 square feet.

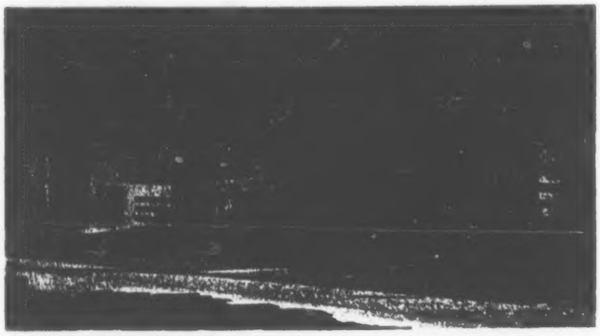
The structure is one story of masonry slab on grade construction with a gabled roof. In anticipation of the need to adapt to restrained sites with limited access, both the public and service entrances are approached from the front of the building; the service entry is architecturally shielded from the main covered entrance. Site improvements include vehicular circulation for student pickup and drop-off, parking for staff, and parking for visitors.

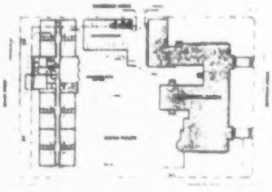
The 6,800-square-foot core comprises an entry vestibule, a lobby with built-in benches and display cases, an administrative area with two adjacent private offices, staff toilets, a multipurpose room for student activities and lunch, a serving kitchen with walk-in freezer and refrigerator, a laundry area, a custodial office, storage, and a mechanical room. Classroom modules attached to both sides of the core contain student toilets.

Vitetta Group has provided the school district with four "site adapted" installations based on the prototype design. The estimated construction cost of the 12-classroom prototype is $3.7 million.

EXTERIOR

INTERIOR


EXTERIOR


SITE PLAN

OTHER PROJECTS
NEW CONSTRUCTION

Symmes Maini & McKee Associates

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Web site: www.smma.com

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(617) 547-5400

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Principal-in-Charge/ Director of Design

Ara Krafian
Project Manager

Alex Pitkin
Project Architect

John McColgin
Project Architect

Client

Noble and Greenough School
(781) 326-3700

Grade span
9-12

Current building capacity
250

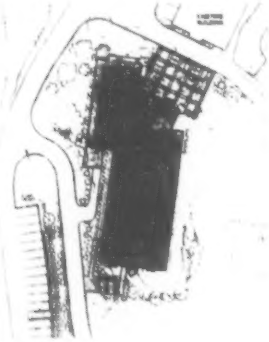
Current building area
27,500 square feet

Total project costs
$4.25 million

Cost per square foot
$155

Space per student
78 square feet

Completion date
1998



SITE PLAN

Noble & Greenough Science Center Dedham, Massachusetts

Symmes Maini & McKee Associates

The Noble and Greenough School Science and Technology Center was first occupied and completed in 1996. Located on a private school campus southwest of Boston, the project fulfilled several objectives of the institution. SMMA architects and engineers provided the school with new facilities for science and technology for students in grades 9-12. This included labs, classrooms, and project workspace for both traditional sciences- biology, chemistry,and physics—and non-traditional sciences such as ecology and technology. A 125-seat auditorium is shared by science and performing arts.

SMMA met program, site, and architectural challenges by providing a building that was expressive of science in its look, siting, and layout. The design also fulfilled the school's campus plan, based on European hill towns, which distributes present and future buildings along the edge of a plateau and leaves an academic quadrangle traffic-free for students.

Materials used on the exterior are extrapolations of others found on adjacent buildings-face brick and cut stone from the historic building to the south, steel-frame entrance pavilion and metal windows from the modern buildings to the north. The steel-frame structure is supported on cast-in-place concrete foundations pinned to rock out-croppings. ■

EXTERIOR

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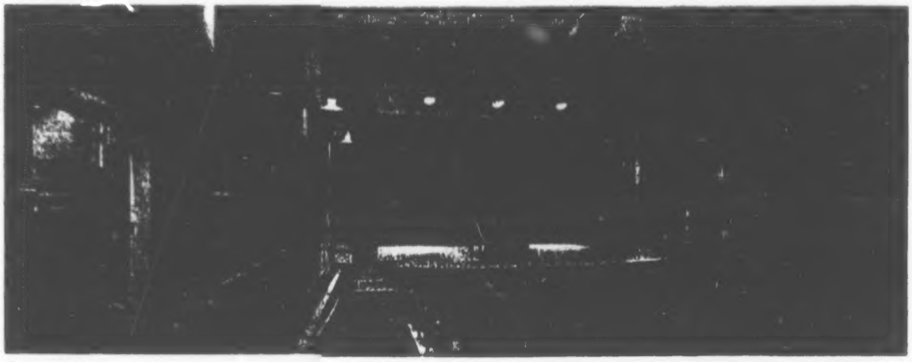
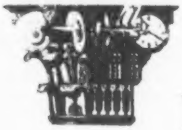
SCIENCE LAB



AUDITORIUM



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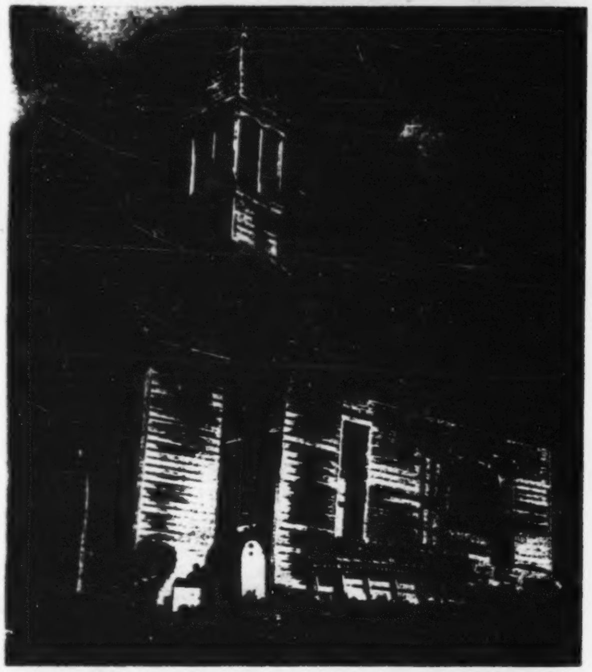

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